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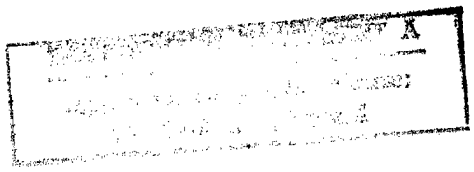

USSR Report

ENERGY

No. 127

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Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 7 Aug 82 p 2

[Article by A. Gumenyuk, general manager of Komineft; "An Oil Industry Request," and commentary by correspondent V. Krukovskiy]

[Text] This year the oil fields of the Komi Republic should deliver to the nation more than 19 million metric tons of oil, and by the end of the five-year plan the output should increase to 21 million metric tons a year. This goal is difficult but realistic. However we have already noted a dangerous lag in realization of these plans; the objectives with respect to oil extraction and the drilling of operational wells are not being met.

We are particularly worried about the situation at the leading fields exploiting the Usinsk and Vozeysk deposits. It is here that we must obtain the basic increase in fuel output. The oil field workers are putting their hopes on very rapid switchover of the existing wells to mechanized oil extraction techniques. This obviously applies equally well to several other deposits which have been in operation for many years--Pashninsk, Zapadno-Tebuksk, Dzh'ersk. This is why we are faced with the problem of providing the basic field mechanisms--downhole centrifugal electrical pumps (PTsEN). Without fear of exaggeration we can say that not only today's output but also tomorrow's increase in out put are in the hands of the machine constructors producing this equipment.

The advantages of these units over the sucker-rod pumps used in the industry for many years are incontestable. First of all, because of more effective utilization of the wells. While the sucker-rod pump under our conditions can at best pull from a well 30-40 cubic meters of liquid a day, use of the PTsEN makes it possible to increase the extraction to 250-500 cubic meters a day and in the best versions up to 700 cubic meters a day (depending on the power).

Unfortunately Minkhimmash [Ministry of Chemical Machinery] plants in which large-scale production of these units is under way cannot fully satisfy the requirements of the oil industry, particularly the needs of the Far North.

In the preceding five-year plan no more than 75 percent of our orders for PTsEN of various types and sizes have been satisfied. Considering the situation existing in the plants, we requested from our ministry for the first year of the current Five-Year Plan considerably fewer units than in the preceding years--367 PTsEN systems and 70 low-speed electric-screw pump (EVTN) systems. The latter will be used in larger and larger numbers in the Usinsk basin in the exploitation of deposits of heavy, high-viscosity oil. But the Minkhimmash plants did not satisfy even the reduced request. Moreover the delivery schedules were systematically missed. It is true that Minnefteprom [Ministry of the Oil Industry] was still able to supply us with downhole electric pumps, at least with regard to quantity. But the requirement for high-productivity units was not satisfied.

We suffered large losses because of the poor performance of the production teams of the Moscow "Borets" Plant and also of the Lebedyansk Machinery Construction Plant. They were late in delivering dozens of systems to us.

Of course the number of units is not the only problem. We need better construction and operational reliability of the units, particularly of the low-speed pumps. The new system for extracting oil developed in the design bureau of this ministry and produced at Livny does not satisfy our needs. It was designed for ideal conditions and such conditions just don't exist; therefore it quickly fails in the well.

COMMENTS OF OUR CORRESPONDENT--It is true that the volume of production of this complex unit in the USSR does not yet meet the needs of the oilfield workers. But the Moscow "Borets" Plant alone has more than doubled its output of these units in the last two years. With the introduction into operation last year of the first phase of the Al'met'evsk Downhole Electric Pump Plant their annual output has reached nearly 10,000 units. With respect to quantity this is close to the requirements of the oil extraction industry.

However there are still some unresolved problems. A. Badamyan, manager of the "Borets" Plant, agrees with this.

"In the first stage of machinery construction the emphasis is naturally on quantity. But now we need more high-capacity PTsEN. This is the result not only of the increasing volumes of oil extraction but also the ever more complex nature of the conditions of oil extraction from the ground. However, the machinery constructors are readjusting very slowly."

Why? From the viewpoint of the plant manager there are two reasons: first, the lack of suitable electric motors, which are produced by KhEMZ [Kharkov Electromechanical Plant]. Second, the large labor content of the high-capacity pumps--double that of the conventional pumps.

It is difficult to argue with these conclusions. In fact, in the first quarter alone KhEMZ was about 300 electric motors behind schedule in deliveries to the Moscow plant. It is also true that the Al'met'evsk Downhole Electric Pump Plant is for some reason oriented toward the output

of low-power motors and units. This means that quantity dominates over quality at both the planning and production levels. This is why it appears to be worth while to listen to Badamyan, who considers that the machinery constructors and the oilfield workers together with the planners should as soon as possible sit down at a "round table" and agree clearly on a program for action on all these questions.

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INCREASED GAS OUTPUT IN TYUMEN NOTED

Moscow EKONOMICHESKAYA GAZETA in Russian No 36, Sep 82 p 3

[Article by staff correspondent V. Dubrovin: "Toward New Frontiers"]

[Text] At the end of August the Tyumen dispatch service computers recorded the following: the daily output in the oblast reached 950,000 metric tons. In comparison with the preceding August the increase was 60,000 metric tons and a considerable amount of gas. We recall that it was only a year ago that the CPSU Central Committee approved the initiative of the Tyumen Oblast work collectives concerning expansion of the socialist competition for early achievement in the 11th Five-Year Plan of one million metric tons daily output of oil in April 1984 and one billion cubic meters of gas in the first quarter of 1985.

The patriotic initiative of the Tyumen workers developed on the wave of labor enthusiasm initiated by the program approved by the 26th CPSU Congress at the suggestion of L. I. Brezhnev for further accelerated development of the oil and gas industry in Western Siberia.

According to the apt expression of the oil field workers--"Oil and gas are found at the end of the drilling tool." In fact, the expansion of the fields and the increase of the output of hydrocarbon crude depend directly on the well drilling rates. These rates are growing from year to year. Thus, the Glavtyumen'neftegas [Tyumen Oil and Gas Administration] collective is scheduled to put into operation more than 4000 oil wells. This means they will be drilling through nearly 13 million meters of rock, or 25 percent more than last year. The year did not start well for the drilling crews--severe cold caused equipment failures and interfered with the drilling rhythm. Today the drillers are catching up. In April they reached for the first time the goal of a million meters of drilling, by June they had already reached 1,200,000 meters and are continuing to work at this rate.

The drilling speeds which the best drilling crews are achieving have not previously been demonstrated by the oil workers of the country. Competing in honor of the 60th anniversary of the founding of the USSR, by the end of August the team of V. Sidoreyko from Surgut UBR-2 [Drilling Administration-2] previously led by V. Volodov, had drilled more than 80,000 meters in the

Yaunlorsk field. Three crews from this same administration (A. Ptitsyn, A. Shukyurov and Yu. Gertner) and the crew of A. Kuz'min from Nizhenvartovsk UBR-1 have passed the 60,000 meter mark.

The leaders ascribe their successes to a high level of organization and discipline, skillful use of the latest equipment and advanced well drilling technology, and also proper use of psychological and material incentives. At Surgut UBR-2 (which two years ago was led by G. Levin, well-known Samotlor field drilling supervisor and Hero of Socialist Labor, the brigade crew, for example, was backed up by precise engineering calculations. The administration economists issue to each brigade an agreed-upon plan with indication of the drilling schedules for a series of wells and the material expenditure norms. The administration collective is working steadily and is leading all the other collectives in the oblast with regard to above-plan drilling footage.

The example of the leaders is being followed by others. The experience of the leaders is particularly helpful to the young drilling collectives, particularly those using the expedition-team method. The "flying" UBR from Bashkir and Saratov, for example, are working productively in the Surgut fields. Early this year drilling supervisor Yu. Abakumov started wearing a placard saying: "100,000 meters a year." Abakumov says: "When V. Volodov's crew, working in a neighboring field, reached the 100,000 meter mark, this got us interested. We went there, learned, analzyed and compared. The Surgut workers helped us in every way possible, sharing their last spare parts. Today there hangs in crew rest area a graph of the work of our neighbors; alongside we record our own results. In August the graph showed 70,000 meters, which has already surpassed last year's results."

In comparison with the same period last year, the oil drilling crews have completed nearly a third more footage. The Surgut-2, Salymsk, Menzelinsk, and Nizhnevartovsk-2 drilling administrations are now operating without waste. The drilling crews are using more and more of the inverted-emulsion mud, prepared using degasified oil, in drilling the wells. Additional oil flow will result from the use of this technique in a thousand completed wells. However, high drilling quality has not yet been achieved in the "Noyabr'-skneftegaz" and "Krasnoleninskneftegaz" associations.

There are some recognized leaders in the competition among the oil well drilling crews to extract from the Siberian depths one million metric tons of crude a day. For example, the initiator of this competition--the team of the "Yuganskneftegaz" association--has been the leader for over a year. Today this crew is still leading the others in approaching the goal--this team intends to extract from the ground 55.5 million metric tons of oil and nearly 1.5 billion cubic meters of wellhead gas. In eight months more than 300,000 metric tons of hydrocarbon crude has been shipped from the Yugansk fields in addition to the planned output.

There are also several outstanding crews in the largest oil producing association--"Nizhnevartovskneftegaz." The plan is to extract this year from its

fields, primarily from the Samotlor field, 211.5 million metric tons--more than half of all the Siberian oil to be extracted. A team of several thousand workers is exerting considerable effort to increa e oil production. To this end two new fields will be put into operation, and then four more in the future. Unfortunately the Nizhnevartovsk constructors, drillers and producers are putting the new capacities on line slowly. As a result they are 500,000 metric tons behind their production schedule. Of the six oil and gas producing associations of the administration only the "Belozerneft" NGDU [Oil and Gas Extraction Administration] is operating 250,000 metric tons ahead of schedule. Here the team led by A. Kozlenko took the initiative: "Let's service more wells with fewer workers." All the teams of the extraction department have supported this initiative. Each operator has taken on several additional wells, which is making it possible to service the increasing number of wells without increasing the number of team personnel. In this department, headed by Yu. Uryadov, the gas-lift oil recovery technique has been introduced for the first time in the Samotlor field and low-flow wells are being changed over without any delay to the mechanized crude lifting technique. In a word, there are good examples for emulation in the association itself. However the lagging performance of the Nizhnevartovsk crews has had considerable effect on the results of the main administration, which is 780,000 metric tons of oil behind its extraction (delivery) schedule.

The gas producers, who are successfully meeting their goals, deserve a good word. As of today they have delivered 750 million cubic meters of gas over and above the plan. By the end of September they intend to complete extraction of the first trillion cubic meters of gas since startup of operation of the Siberian fields. As Labor Day approached they, together with the construction crews, put into operation the Urengoy primary compressor station and the Longo-Yugansk and Uzyum-Yugansk intermediate compressor stations on the Urengoy-Petrovsk gas pipeline and the seventh unit for integrated preparation of the gas in this field.

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POOR EQUIPMENT SLOWS OIL OUTPUT

Baku BAKINSKIY RABOCHIY in Russian 25 Aug 82 p 2

[Article by R. Geokchaev: "We Need Capabilities, Not Excuses"]

> [Text] The tower-less [mobile rig] well operation method, which makes it possible to save tens of thousands of metric tons of metal, is being introduced very slowly in the Azerbaijan oil fields.
>
> The most important economic and political problem which the Party is today presenting to the entire nation is that of very strict economy--economy everywhere and in everything. The question of metal economy and rational utilization of meta is particularly urgent at the present time. This was discussed at a republic-wide meeting of industry and transport workers, conducted by the Central Committee of the Communist Party of Azerbaijan, where it was noted that the question of ferrous and nonferrous scrap metal utilization is not being handled well everywhere in the republic. Accelerated introduction of mobile-rig well operation in the oil fields of the republic can add significantly to the collection and utilization of scrap metal. But this technique is being introduced very slowly. Why is this? The following article responds to this question.

Among the initiators of mobile-rig well operation were the Azerbaijan oil field workers; the first examples of the mobile pipe lifting units (replacing the drilling towers) were constructed by the specialists of AzINMASH [Azerbaijan Scientific Research Institute of Petroleum Machinery].

"Unfortunately the rates of switchover to this progressive mode of well operation are still not very high here," says N. Kamilov, supervisor of the oil and gas extraction department of the Azneft Production Association. "Exceptions are the Shirvanneft NGDU [Oil and Gas Extraction Administration], Ordzhonikidzeneft NGDU and Leninneft NGDU. Our offshore oil workers are also using this technique. There are several reasons for the limited use of the new technique, the primary reason being the following. Extensive switchover to the new mode of well operation requires stable delivery to the oilfield

workers of the mobile lifting units, but they are arriving in very limited numbers.

Delivery of the improved UPTI-50 units with load capacity 50 metric tons is particularly critical.

B. Mekhraliev, chief engineer of the Machinery Construction Plant imeni Shmidt, said: "Yes, we are considerably behind schedule in deliveries to the oilfield workers. The six-month plan for output of the new UPTI-50 mobile pipe hoisting units has not been met. Only 40 units have been delivered rather than the planned 120."

What led to the failure to meet the six-month goal? Changeover to production of the new and more advanced pipe lifters required preparation of the corresponding work facilities, which was not foreseen by the plant personnel. The shop where the main components of the unit are assembled is so crowded that it can scarcely accomodate two or three large ChTZ [Chelyabinsk Tractor Plant] tractors. The area around the shop is literally packed with dozens of dust-covered tractors, waiting their turn. Recently the construction of a new shop for the production of flow control equipment was started at the plant; at the present time this shop occupies half the production facility for assembly of the new drill pipe lifters. Consequently, it was necessary to delay series production of the improved pipe lifting gear until construction of the flow control equipment shop was completed. It would obviously have been better to continue the well-organized production of the Bakinets-ZM pipe lifters and fabricate an experimental lot of the new units in parallel and test them out.

Trying to gain time, the plant decided on their own to initiate series production, bypassing testing of experimental specimens of the mobile pipe hoisting units. This was a major error. The plant shipped to the oilfield workers their output, which after some time came back to the plant for the elimination of problems. Several design blunders were discovered during operation of the UPTI-50 units.

It is interesting to note the comment of one of the leading UPTI-50 specialists, M. Mamedov, sector head of AzINMASH. As we found in a conversation with him, he accepts no blame for failure by the plant to meet the six-month goal. He said it was not the designers who forced the changeover to series production of the drill pipe hoists without preliminary tests of experimental specimens.

Now let us take a look at the facts. An experimental UPTI-50 unit was supposed to undergo tests in 1978, but only three years later did the specialists of AzINMASh hand over to the plant the technical documentation for fabrication of the preproduction series of the new pipe hoist. This means that the plant was nearly three years late in producing the improved units for the oil industry. This delay had to be made up. This January the Shmidt Plant workers started series production, being confident of the accuracy of the designers' calculations and the conscientiousness of the suppliers of the component parts for the UPTI-50 unit. This is when it all started....

"We were constantly changing the production processes because of corrections coming form AzINMASh," says I. Kasimov, deputy chief designer of the Shmidt Plant. There were significant errors in certain component drawings, particularly of the hydraulic separator."

After several months the deficiencies in the technical documentation were eliminated by joint efforts of the specialists of the plant and the institute, and it appeared that nothing would impede delivery of the new units in the required quantity. But, unfortunately, production again came to a halt because of the lack of dozens of component articles, which are delivered to the Shmidt Plant by various enterprises of the nation, including some Baku enterprises. Facing the threat of failure to meet the six-month plan relating to delivery of the UPTI-50 pipe lifting units, the plant management sent its representatives to various parts of the nation to hurry up the suppliers.

Deciding not to wait for the Lyudinovsk Accessory Plant to ship the hydraulic cylinders scheduled by the plan, the Shmidt Plant workers fabricated them on their own. They proceeded in the same fashion with many other "shortage" components, the production of which they could with some difficulty arrange in their own plant. But they were not able to produce one of the most basic components of the new unit--the hoist. Today they are still waiting for the Berdichev "Progress" Plant to fulfill its contractural agreement; the "Progress" Plant was supposed to deliver 120 hoists to Baku by 1 July 1982. to date only 40 have been received.

Several Baku enterprises also disappointed the Shmidt Plant workers. Thus, the Machinery Construction Plants imeni Sardarov and KMZ could not fully supply them with the hoisting tackle system and elements of the hydraulic and pneumatic systems. The Machinery Construction Plant imeni V. I. Lenin was more "disciplined"; this plant met their schedule and delivered the required number of gearboxes, but this also led to problems. In their race for quantity the machinery builders forgot about product quality. The gearboxes failed so often that they could not be returned for modification.

Kasimov says bitterly: "The Lenin Plant products are of such low quality that we are forced to return half of them to our supplier. But in accordance with the mobile drill rig production plan only our plant is responsible for their quality....

Analyzing the facts, we can say that the Azneft Production Association has quite valid complaints against the supplier of the new UPTI-50 units; the supplier is responsible for the marked reduction in the rate of transition to the progressive well operation technique this year. But let's ask the question on a different plane. Is the production association itself ready for universal and broad introduction of mobile-rig operation of the fields, which requires extensive preparatory work? In his conversation with me Kamilov complained about several objective factors which became serious barriers to the oilfield workers. Specifically, he mentioned that there is a serious shortage of specialists to work on the mobile pipe lifting units and of specialized teams for disassembly of the drilling towers. There are difficulties in construction in the fields of the special reinforced concrete pads, without which Gostekhnadzor [State Technical Inspectorate] will not

permit use of the new units. But to whom are these complaints addressed? Only to the production association itself, since resolution of questions of this sort is a direct responsibility of the Azneft management. In this connection two questions arise. As is well known, the transition to mobile-rig well operation was initiated in Azerbaijan twenty years ago. Why has it not been possible during this time to solve the problems associated with specialist cadres and preparation of the NGDU for mobile rig operation? The personnel of the production association must have known that the future lies with the new well operation technique. Another factor. On what basis does the management of the Azneft Production Association plan to change over to mobile-rig operation of more than 400 wells by the end of the year in view of the difficulties which will require considerable time to overcome? In this case is the plan for the next six months realistic?

We see that there are several reasons for the slow introduction of mobile-rig well operation in the Azerbaijan oil fields, and for each reason there are justifications and references to objective difficulties. But if we pose the question on the basis of fundamental principles, we must say that the erros in organization of this new and very important matter are explained first of all by reduction of the accountability of the managers of several enterprises and organizations which are responsible for ensuring accelerated introduction of the mobile-rig method of operation. The designers failed to meet their schedules; the machinery constructors did not clearly think through the organization of the operations; and the oilfield workers themselves, while complaining of the shortage of equipment, did not always act with adequate self-interest and assertiveness.

Today, when the Party is emphasizing efficient operation and when conservation of material resources is a vital necessity, leaving thousands of tons of metal to rust in the oilfields while we have the capability for their disassembly is an unforgiveable waste. Here we don't need mutual recriminations nor mutual blame and constant references to objective difficulties, but rather coordinated effort of all the elements and tight supervision of all the segments of the industry where the fate of the progressive method of well operation is being decided.

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ARTEMNEFTEGAZ OVERFULFILLS OIL PRODUCTION PLAN

Baku VYSHKA in Russian 23 Sep 82 p 1

[Article by S. Bagdiyan, general correspondent of VYSHKA: "Above-Plan Oil Is Produced"]

> [Text] Yesterday the collective of the fourth field of the oil and gas extracting administration "Artemneftegaz" headed by the experienced specialist Geybaloy Gasanov pumped into the reservoirs 6 tons of oil in addition to the plan. This quantity of above-plan fuel has been extracted every day here since the beginning of September.

Socialist competition for a worthy meeting of the 60th anniversary of the formation of the USSR during which the field workers displayed persistent striving to use the reserves of oil extraction more completely promoted this to a great extent.

The brigade of foreman Ruslan Kurbanov is an example of this. Somehow on the section well No 540 was flooded. It was examined and it was decided to fill the lower part of the filter with cement, and to perforate the upper. As a result of the work done, the well was put into operation with output of 8-10 T of per oil per day.

It should be said that the flooding of the wells at the old field was a standard phenomenon. One of the reasons was the decay of the operational strings. The standard floodings, as practice indicated, were not very effective since they did not guarantee a long period of operation of the wells. The situation altered when a suggestion of the field specialist and the workers of major repair of wells, wells of the new string of smaller diameter began to be cased. Improvement work has been done since the beginning of the year in 13 wells which made it possible by improving the technological regime to increase their productivity several times.

"In addition," says the senior geologist of the field Viktor Petrushev, "we regularly perform well studies on whose bases effective geological-technical measures are selected and implemented. We focus especial attention on work on the inactive fund. With the help of cutting and drilling of a second shaft, one well was recently restored, and now work is being done on another. There are also other wells which we plan on returning'to life' before the end of the year."

The operators Mikhial Aliyev, Dzhumshud Ismaylov, Velanbek Guseynov, Salam Gamidov, Iskender Fattakhov and others are working well with complete output of effort. About a hundred tons of oil and 450,000 m^3 of gas have already been extracted on the account of the adopted commitments.

The leading collective is striving to give the country more fuel.

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OIL AND GAS

TALLINGAZ SERVICES OUTLINED

TallinnMOLODEZH' ESTONII in Russian 4 Sep 82 p 1

[Article by E. Al'perovich: "Arteries of Light and Heat"]

> [Text] By 1985 the volume of gas extraction in the country will significantly rise and will be 600-640 billion m^3. Its consumption in our republic increases with each year.

Matti Linamyae acquainted us with Il'mar Kayev. I. Kayev is the chief engineer of "Tallingaz," and Matti Linamyae is the head of the office of liquefied gas of this administration. The meeting occurred on a Leningrad highway where different production services of the administration are located.

"There are two gas-supplying stations in Tallinn," said Il'mar Kayev. "One is here on the Leningrad highway, and the second is a little younger, in Myannika. But they both need reconstruction. For the needs of the city and the republic roughly double every five years. This is why we are laying several new natural gas lines here, and are building a new operator station which will service them. All the work will mainly be done by winter. Then we will start construction in Myannika."

Tallinn receives natural gas (and this is not only fuel, but natural material for the petrochemical and chemical industry) from the unified national system of gas supply of the country, the world's largest for productivity and power available per productive unit. Our republic is directly serviced by the Pskov-Riga trunkline whose branches have been laid towards Rakvere, Tallinn and Tartu.

The shale basin of the republic receives gas from Leningrad. This type of fuel will arrive in Narva in September. This is why in the middle of the month a large group of worker of the administration will travel here to help the Narva colleagues: to give them their experience, and if necessary also equipment.

These days the people of Narva are still using the shale gas. This is the same gas that was previously in Tallinn. On 14 February 1953, it arrived in the capital of the republic, and three years later "yielded" to natural gas, as a result of which the air basin became considerably cleaner.

In 1953 the users of "Tallingaz" were roughly 5,000 apartments, and now already 145,000. A total of 72,000 of them consume liquefied gas. Its offices are also located on the Leningrad highway and also now are a unique construction area. By the way, let us give the floor to Matti Linamyae:

"We are performing the reconstruction of our industry with our own forces. Perhaps construction is therefore not advancing as fast as we would like. Nevertheless in 1980, the tank cars with liquefied gas will be received at the new railroad platform. Our tank fleet expanded in 1981. We received new and more capacious tank cars, and their total quantity increased several times. Now we are ending installation of the compressor station and therefore will be able to simultaneously 'pour' triple the amount of gas from the railroad cars into the tanks where it is stored. The living conditions of the workers are improving, dressing rooms and showers have been built."

Before reaching the residents of Tallinn, the liquefied gas covers hundreds, and thousands of kilometers. Roughly 50 tanks arrive per month on the railroad in Tallinn, to the gas-filling station. They are from the Komi ASSR and Tatariya, Belorussia and Leningrad Oblast. Then they fill the cylinders which are transported to the city on trucks. But the office of liquefied gas "Tallingaza" serves not only the capital of the republic, but also the Kharyuskiy, Khaapsaluskiy Rayons and some others, the islands of Khyiumma and Saaremaa.

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THERMAL METHOD INCREASED GRUZNEFT' OUTPUT

Tbilisi ZARYA VOSTOKA in Russian 5 Sep 82 p 2

[Article by Vasiliy Chernov, chief engineer of the production association "Gruzneft'": "Output Increases"]

> [Text] The 26th Congress of the Georgian Communist Party placed before the oil workers the task of maximum provision of the need of the republic for oil products with in-house resources. In this case a lot of attention was focused on such a reserve for increasing the volumes of oil extraction as improvement in oil output of the already worked beds.
>
> This is a very urgent problem whose solution will make it possible to significantly increase oil extraction in the republic without involving additional capital investments. For example, improvement in oil output of the beds only by one percent on national scales is equivalent to discovering several new fields.

In the known decree of the CPSU Central Committee and the USSR Council of Ministers "Measures for More Complete Extraction of Oil from the Depths" the need to increase all extraction in the old regions which have oil refining facilites was revealed in all extent.

With the practical solution of this task, the collective of our production association "Gruzneft'" encountered a number of difficulties. It was necessary not only to make the maximum use of the potentialities for improving oil extraction at each well, but also to not increase the net cost of work in this case.

The specialists of the production association "Gruzneft'" had a very responsible attitude to studying the progressive methods of extracting oil used in domestic practice. They finally decided on the so-called thermal methods of working the fields. Their use will make it possible not only to increase oil output of the beds but also decrease outlays for development.

Under conditions of our republic this is very important. Take, for example, the oldest oil field of Georgia in Mirzaani. Development here has been done for 50 years, and now, as we say, the oil workers have reached a regime of exhaustion. But this is according to old measurements. During these 50 years,

only several percents of the available reserves were extracted. If development of this field is continued by existing methods, by the year 2000, we will succeed in extracting only 0.8 percent of the initialreserves. The same situation is present at the field in Patara Shiraki. Here only several percents of the explored reserves have been extracted from the depths.

We could not be reconciled with such low, and unfortunately, nearly traditional rates of working fields. Today one can say with confidence that a step forward has already been taken. We have decided on the thermal method of extracting oil whose project was developed in the production association "Termneft'."

What is its feature? "Termneft'" is extracting with the use of intrabed combustion. Here with generation of heat by burning a certain part of the oil contained in the depths, it is used in the process of extracting bed oil. In order to constantly maintain combustion in the bed, air is continuously injected through the injection well. Large volumes of hot air seem to "raise the tone" of the field, decrease the viscosity of the oil, and drive it towards the operational wells.

The temperature in the combustion zone reaches 370° C. At this temperature all the liquids, with the exception of the heavy oil fractions are evaporated. They are left on the surface of rock grains in the form of coke-like residue. It is also the main fuel for intrabed combustion, forming a so-called combustion front. A zone of superheated steam forms before this front through convective transfer of heat. With sufficient accumulation of heat, it is injected together with the air and water which under the influence of heat is converted into steam. This has an even more intensive effect on the bed and displaces the oil towards the well.

This method is very effective. It considerably improves the level of oil extraction, and not only does not increase its net cost, but even decreases it.

Yes, it is no problem to find the original raw material for the use of the method of intrabed combustion. Air and water serve as this. In this case any water can be used, in particular, the so-called bed water. In addition, a structure is not required on the surface of special steam generators, units for softening water, heat lines, or complicated well head equipment.

We calculated that the use of the thermal method at the field in Mirzaani alone will permit an additional extraction of hundreds of thousands of tons of oil, and to bring the coefficient of oil output to 38 percent. It will intensify dozens of times the process of oil extraction and will cut in half the net cost of work.

Our association has already completed the preparatory period for transition to the new method of work. At the Mirzaani field a compressor station has been installed and adjustment of equipment is underway. The wells of the old fund are being prepared, and new operational wells are being drilled. The system of collection of oil is being improved with regard for the specific nature of its extraction with the new methods of working.

Start-up of the units is planned for the fourth quarter of this year. This is understandable. This is new work for our specialists and requires careful preparation. It is necessary to note that we have already achieved definite success in this direction. The technique of working the beds by the thermal method had been mastered by many of our workers. Here I would like to say a good word about the people who are closely involved in training the personnel. These are the head of the department of major construction of the association Ivan Mtibilishvili, head of the compressor station, senior worker of the oil industry of the republic Ivan Varudoshev, senior foreman Boris Gorashvili, many specialists of the service of major and underground well repair.

Our collective has adopted high socialist commitments this year in honor of the 60th anniversary of the formation of the USSR. The republic oil workers always firmly keep their word. This is indicated by the successful fulfillment of the commitments in honor of the Day of Workers of the Oil and Gas Industry. We are keeping it even now. We mandatorily are emerging onto new, higher frontiers. We are helped by this by the introduction of leading technology of extraction of oil, and improvement in the oil output of underground beds.

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OIL AND GAS

HISTORY OF SOVIET TANKER FLEET GROWTH OUTLINED

Moscow VODNYY TRANSPORT in Russian 23 Sep 82 p 1

[Article by V. Orlov: "Dictated By Time"]

> [Text] Twenty-eight September was a holiday for the sailors of the tanker fleet, and all workers of the shore enterprises associated with shipping liquid cargo. The Soviet maritime enterprise for shipping petroleum products "Sovtanker" was created on this day 50 years ago.
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> Our correspondent appealed to the deputy head of Glavflot, the head of the section for shipping by the tanker fleet of the USSR Ministry of the Navel Fleet Anatoliy Grigor'yevich Kizimirov with a request to discuss the history of our tanker fleet, the modern shipments of liquid cargo and the outlook for the development of this important type of navigation.

"If we speak of the sources of creating the Soviet tanker fleet, then one should classify them with the beginning of the 1920's, where in our young state a decision was adopted to build 2 tankers from the hulls of military ships 'Azneft'' and 'Gor'kiy.' To some degree they also became the ancestoros of the modern tanker fleet.

Time passed, and the young republic developed at unforeseen rates. Plants and factories were built, new mineral fields were discovered, grand plans for those times were implemented. The country needed oil.

Then a decision was adopted by the government to set up the first Soviet maritime enterprise for shipping petroleum products, "Sovtanker." The day of creation of "Sovtanker" by right can be considered the point for calculating the Soviet international liquid cargo navigation.

The construction projects of the first five-year plans obliged the sailors of the tanker fleet to do a lot. They supplied the power engineering resources for them. During the Great Patriotic War, the Soviet tankers supplied fuel under the bombardment of the enemy. From the first peaceful days they threw all of their efforts to restoring the oil liquid fleet and the creation of new ships.

The 1950's can be called the time of the most intensive quantitative development of our tanker fleet. Then the welded tankers of the type "Kazbek" were constructed. They worked successfully for many years. They supplied petroleum products to India and Cuba, transported export liquid cargo to many countries of the world, having recommended the Soviet Union in the international arena as a state which has a powerful tanker fleet.

Today it occupies one of the leading places in the world. The maritime enterprise "Sovtanker" which is small by modern scales has now grown into five steamship companies whose fleet numbers over 350 ships capable of supplying any liquid cargo to all points of the World Ocean.

The assortment of cargo that the Soviet tankers supply is expanding each year. Today this is no longer oil and petroleum products, but also liquefied gas which requires low temperatures for its transporting, over 35° of frost, and all possible chemical reactives. The latter can be shipped only in tanks built with the use of special acid-resistant materials. In a word, the modern tankers have a very remote resemblance to the first domestic ships.

The requirements of the day are no longer quantitative growth in the tanker fleet, but the creation of qualitatively new tanker vessels which are specialized for transporting definite types of cargo.

The most advanced today are the liquid cargo ships of the type "Pobeda." These are diesel ships which meet the most modern requirements for protection of the seas from pollution. Their tanks are similar to giant thermoses with double shell which excludes oil from falling into the open sea. The modern equipment on these tankers makes it possible for rapid cleaning of the tanks practically from any types of liquid cargo rapidly without the help of shore services, and the most advanced navigational equipment to plough the vast spaces of the ocean in any weather.

Or take the tanker fleet of Latvian and Primorskiy marine steamship companies. Their ships of increased ice class make it possible to supply liquid cargo to the arctic year-round.

Today all 5 of our tanker steamship companies are distributed both in the spheres of their influence and in the fleet composition. Thus, the ships of the Novorossiskiy marine steamship company are distinguished by large dimensions. Its tankers of the type "Krim" have dead weight of 150,000 T. The ships of the Caspian marine steamship company have considerably lower tonnage, but on the other hand the annual volumn of shipment here is greater than in any other steamship company. The Georgian marine steamship company specializes in shipping light petroleum products the different oils. They do this on tankers with dead weight from 18,000 T and lower. The Primorskiy steamship company provides cargo to the eastern section of the Arctic and in a Vietnamese direction. The Latvian covers the western sector.

The current course on which the Soviet tanker fleet is developing is determined by the further expansion of the assortment of cargo, more precisely specialized ships, and improvement in the quality of shipping liquid cargo.

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AUTOMATIC OIL EXTRACTION AND TRANSPORT SYSTEM TESTED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 12 Aug 82 p 1

[Article by V. Il'in: "Automatic Machines Extract Oil"]

[Excerpts] Testing of an automatic system of extraction and transport of heavy oil is underway at the first oil mine of the administration "Yaregan-eft'". It was developed by the scientists and specialists of the scientific-research and planning institute "Neftekhimavtomat." The instruments in automatic machines have taken upon themselves for the first time all the complicated duties of operators for underground extraction of oil.

Having used heat to remove the main obstacle, oil viscosity, the miner-oil workers have faced a new obstacle. The steam which was considered a friend, has now become a threatening enemy. It has become truly hot and stuffy in the mines. In individual shafts, the temperature has risen to 34° and more. The specialists of Yarega had a choice: either limit the scales of use of the new technology, and consequently, oil extraction, or find a method of replacing the odd operators with automatic machines.

The scientists of the Sumgayt institute "Neftekhimavtomat" helped them. The draft developed by the Azerbaijan developers for automation of mine extraction of oil could be boldly called unique. The fact is that there can be no talk of using electricity here because of safety conditions. Its role must be fulfilled by compressed air.

There are about 200 inclined wells here. Their pipes protrude directly from the wall impregnated with oil. Each has its own nature and its own habits. The operator has to remember all of their "capriciousness", and open and close the slide valves at a precisely assigned time. Any disruption in the regime means underextraction of fuel. The operator often has a duty of measuring the output of each well, which previously was done manually.

Now next to the gallery of the fifth incline, a small hall has appeared, something like a bunker. There are many instruments and a telephone. Rubber hose-airlines are connected to the instruments. The hall is literally crammed full with numerous switches, regulators and dials.

"These instruments now take upon themselves all the concerns of the operator," relates the head of the sector of the Sumgayt institute L. Zalevskiy, slapping his hand on the metal shell of a small cupboard the height of a man.

The "filling" of the cupboard is very similar to contents of a radio reciever of television. Only instead of electrical conductors, here there is an interweaving of the thinnest rubber hose-airducts. Pressing on the keys and levers, turning the head to regulators, operator Vladimir Vasil'yev assigns the work of 70 wells at once.

The functions of the operator end here. Now the incline can be closed, there is nothing for man to do there. All the concerns have been taken by the pneumaticprogramming device. Monitoring of the actions of the automatic machines is done from the surface, from the dispatcher oil mine where a special panel has been installed. Standard electronics dominate there already.

The automated system is successfully passing tests.

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SEARCH FOR GAS IN ASTRAKHAN OBLAST

Moscow PRAVDA in Russian 2 Sep 82 p 2

[Article by PRAVDA special correspondent D. Novoplyanskiy, Astrakhan Oblast: "In the Sands of the Delta: Gas Field Development Commences on the Lower Volga"]

[Text] Aksaray Station, which will be quite well known in the future, is located about 50 kilometers north of Astrakhan. Not far at all, but it is precisely here, beyond the Volga delta, where the lush oasis abruptly ends and the barchan sands begin -- a realm of light-gray, desolate sands. They are called light sands. They consist of fine, soft dust, which even in calm weather powders the face and makes its way into one's mouth and eyes. And when the wind picks up, it generates clouds of dust and dust storms. A thousand pairs of protective goggles were sent to the first construction workers -- it was hard to get used to them, especially in the heat.

Opinions differ, however, on the local climate and conditions. Graduates of Chernigov GPTU [City Professional-Technical School] who arrived at the end of July to help build the gas condensate complex, gasped: "Is it hot! Like on a hot griddle," although the weather was not that hot -- 34° Celsius. Workers who arrived that same midday from Mangyshlak Oblast exclaimed joyfully: "It's not so beastly hot here, and there are orchards and farms along the rail line -- real paradise in comparison with our desert."

Here is another paradox. Usually construction workers get fed up with the autumn with its muddy roads and winter with its freezing weather and snow -- people can't wait for summer. Here it is exactly the opposite. F. Baron, chief engineer of the Astrakhanpromgazstroy Association, comments: "I wish summer would hurry up and end -- things will be much easier after that." Winter is not bad here -- in January, they say, the temperature goes down to minus 6.

Geologists have long looked for oil and gas here, and not without success. There were many good predictions, and there were also some skeptics. We spoke with Yu. Kruglov, deputy chairman of the Astrakhan Oblast Executive Committee, one of those enthusiasts who are firmly convinced that the local area is rich in hydrocarbons. He recalls that an article appeared about 6 years ago in a reputable magazine, calling for an end to oil and gas prospecting in the Astrakhan area as fruitless. Refutation then came from a depth of 4000 meters: drillers struck a large gas condensate pool, producing a flow of 600,000 cubic meters per day.

This event took place in 1976, on the left bank of the Volga, not far from the Aksaray Railroad Station. A year later they struck gas on the right bank. Subsequently two more wells came in, in the Aksaray field. Surveys taken from space clearly indicated the great extent of hydrocarbon resources here. Studies and calculation of reserves will continue for quite some time, but one thing is definite: these resources must be exploited.

Scientists consider the new field to be unique in content: the Astrakhan gas contains a valuable condensate and has an unusually high percentage of sulfur. Our country is more and more in need of sulfur, especially for the manufacture of mineral fertilizers.

Plans call for bringing on-stream here in 1984 processing facilities to handle 3 billion cubic meters of natural gas. In 1986 production and processing figures are to be boosted to 6 billion, and later to 18 billion cubic meters per year. It has been decided to drill 50 wells in the Aksaray area -- in the sands north of the Caspian -- and connect them by pipeline to the industrial center's main facility -- a natural gas processing plant.

The construction began from dormitory railcars and the traditional tents, put up last spring. But they immediately proceeded with assembly and erection. They are not assembling dwellings but entire streets and communities simultaneously. They are now being delivered as an aggregate: a town housing 4000 persons. In the past pioneer construction workers would be happy to have a roof over their head, but times have changed. Housing here is being provided with all prescribed conveniences, no ifs, ands or buts. First the water and sewer lines came on line, on 12 June. They then made sure that a dining hall accommodating 500 persons plus other services were ready. Only after that, on 19 June, did they begin moving people into the first community.

Four thousand construction workers will also receive housing in another comfortable, attractive settlement. They are already assembling and erecting its three-story buildings: it will contain 13 dormitories and 17 apartment buildings with comfortable apartments. The settlement, which has been temporarily given the name Komandirovochnyy, will house a thousand persons. Residents will include persons from almost all our republics, as well as competent representatives of 6 or 7 union ministries.

So-called pioneer bases will sprout up adjacent to the new Pionernaya Station. Stacks of pipe, slabs, and crates will create avenues and alleys with intricate fences and unexpected dead ends. Minpromstroy [Ministry of Industrial Construction], Mintransstroy [Ministry of Transport Construction], Minmontazhspetsstroy [Ministry of Installation and Special Construction Work], and Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] have their pioneer bases here, and the area contains a total of 47 supply storage facilities and shops of various agencies. Incoming freight traffic is steadily growing, and the roads in the area are being hastily widened and paved. New roads which look like airport runways are being constructed of large concrete slabs. Similar slabs -- they are obtained from Leningrad and Kiev -- have been laid at the new ferry slip at the Buzan River crossing.

The construction project is attracting volunteers like a magnet. Brigades of experienced construction workers have come from Orenburg Oblast. Veterans have also come from Belorussia and Azerbaijan, and some of these have mastered 3 or 4 construction trades. Four hundred graduates of vocational schools are arriving from the Ukraine. But Astrakhan has supplied the greatest number of people. The Communists of this oblast center have selected and sent here skilled workers, engineers, and intelligent organizers. Each morning a nonstop passenger train from Astrakhan to Aksaray brings 900 passengers to the construction site -- city residents employed on the project. The party oblast committee has set up a headquarters to guide construction of the gas condensate complex.

The Astrakhanpromgazstroy Construction-Installation Administration of USSR Minpromstroy currently has a total workforce of 4300, while there are approximately 8000 persons on the construction project. Aksaray's first settlement soviet has been elected. The first Astrakhanpromgazstroy party meeting was held in July. It was attended by 155 Communists. A party committee was elected. V. Lysenko, the party committee secretary, told of the first steps taken by the party organization and named competition leaders.

They include bulldozer operator Nikolay Golovanov, a veteran at this construction project: he has been here since February 1982. Top truck driver Vladimir Mamonov and Komsomol member Mikhail Surkov, leader of a brigade which has done an outstanding job in erecting housing, have been working here since March of this year. Aksaray is just in its infancy, and therefore people who have not even worked here 6 months are already veterans. In August the workers on the project learned of the labor successes of Yevgeniy Kiriyenko's combined brigade. It erects a three-story building not in 45 days, as scheduled, but in 28. Erection is in progress day and night, in three shifts.... A solid foundation is being built for decisive movement forward by the project.

A. Skripchenkov, party oblast committee construction department chief, states that an extremely rapid pace has been scheduled, and the total number of workers will reach 20-25 thousand. Large-scale construction of housing will be undertaken in Astrakhan. Yes, in the oblast center. It has been decided that all gas processing plant and construction workers will live in Astrakhan and commute to work by electric train.

They will utilize the tested and proven duty shift method, and the settlements which are today going up at the Aksaray gas field will be duty-shift communities. New, modern microrayons will be going up in Astrakhan on the Volga. By the end of the decade the city's population will increase from half a million to approximately 800,000. Not only the city but the entire region will be transformed.

New and urgent problems are constantly arising. One of the most important is that of fully preserving the wonderful natural environment along the lower Volga and preserving our extremely precious nature preserve areas. The oblast party organization is particularly concerned with this. Essential here is the assistance of scientists as well as carefully thought-out measures taken in advance. We should mention that the construction workers on the gas condensate complex have a great deal of respect for the mobility and efficiency of the

subdivisions of two ministries -- industrial construction and transport construction. There is a good deal of uneasiness here, however, regarding the position of the client ministry, the Ministry of Gas Industry. They are doing a poor job of responding to requests and reminders and are slow about settling urgent matters and sending technical documentation. Such complacency could do serious detriment to the project.

Aksaray is taking its place alongside the major construction projects of the 11th Five-Year Plan. Two years hence the natural gas discovered deep under the earth in this area will begin serving people's needs.

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OIL AND GAS

STEAM METHOD OF OIL RECOVERY

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 13 Aug 82 p 2

[Article by KazTAG correspondent G. Groyser, Mangyshlak Oblast: "'Steam Room' for Crude Oil"]

[Text] The mighty gusher of steam which had ascended several kilometers had within seconds become transparent, invisible. And only a light little cloud appearing over the Karazhanbas field announced the commencement of testing the experimental commercial-scale installation for injecting steam into oil-bearing rocks. The new thermal method of producing oil, adopted by decision of the 26th CPSU Congress, will make it possible to double the productivity of high-viscosity pools.

...The whistling of the steam generator made it hard for me to hear what N. I. Krivosheyev, deputy general manager of the Soyuztermneft Scientific-Production Association, was saying. We walked back several hundred meters so that we could hear each other.

"It will be much quieter when the equipment is working under regular operating conditions," the specialist explains. "Steam will enter the ground via an injection well. The crude oil is sited shallow, only 300 meters below the surface, but nature has 'compensated' for the easy accessibility of the Karazhanbas crude with its unusually high viscosity. As long as the field is in the early stages of production, underground pressure forces the tarry liquid upward, but the formation energy is not limitless; we must help maintain it. Scientists suggested making the oil more fluid by injecting high-temperature steam into the ground."

Nikolay Ivanovich and I took a tour of the 50-hectare site, which was covered with silvery equipment as tall as a 3-story building. It was no simple matter to build a new industrial complex in the arid desert. They laid power and gas-fuel lines, water lines, and erected equipment at a shock-work pace.

The drilling rig workers who had come today to view the testing of the steam generator, were smiling and joking, but quite recently their mood had been different: they were having trouble cementing in the injection wells -- the thermostable cement kept cracking. Hundreds of experiments were performed by A. Podkolzin's brigade before its work was judged excellent. The latest

scientific and technological advances were employed in construction of the water distillation units. The first unit will produce approximately 5000 cubic meters of pure water daily, providing for the requirements not only of the installation but for those of the oilfield workers as well.

Several hours had passed since start-up of the country's most powerful steam generator, producing 60 tons of steam per hour. Boiler inspectors entered the control room. These veterans, who had seen a good deal in their day, shook their heads and made a thumbs-up gesture: really fine.

"We have never before encountered such dry, saturated steam," A. Z. Vasin, chief of the Mangyshlak Mining-Technical Inspectorate, said later. "It was only 20 percent moisture. I was happy to sign the working commission document certifying successful completion of the first phase of the testing."

The little cloud over the oilfield soon disappeared -- the steam generator was now working under regular operating conditions. By year's end the underground "steam room" will produce its first 140,000 tons of valuable crude, while by the end of the 5-year plan the installation will be producing one and a half million tons of crude per year. The experience amassed by the Buzachi people will find application at many similar oilfields in this country.

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UNDERGROUND GAS STORAGE FACILITY

Riga SOVETSKAYA LATVIYA in Russian 5 Sep 82 p 1

[Article by SOVETSKAYA LATVIYA special correspondent N. Yermolayeva: "Custodians of 'Blue Fuel'"]

[Text] The Inchukalns underground gas storage facility is situated in the forest, at some distance from the highway. And it is for good reason, for the ground here contains good, porous soil, without which this type of gas storage reservoir could not be established.

Probably every one of us, hearing about underground gas storage, has pictured an underground chamber filled with tanks, into which gas has been pumped and from which gas is removed as needed. This is not quite how it is. There is no reservoir in the conventional meaning of the word at the facility. "Gas is pumped from the pipeline under a layer of ground and porous soil of special structure and is stored like that, reminiscent in configuration to an enormous cloud," explained station compressor shop chief V. Nikiforov. "Our job is to concentrate gas in such reservoirs. They are situated at a depth of 300-500-700 meters, depending on the natural composition of the soil."

This is a busy time for facility personnel. Soon pumping of gas into the reservoirs will be completed. It is done in summer, when need for "blue fuel" is at a minimum in industry and in the home. In winter the gas collected in the storage reservoirs will be conveyed by pipeline to the customers.

The process of removing gas from such a reservoir is not simple. It is brought out of the ground through pipes, under high pressure, heated to 70 degrees Celsius. It must then be cooled and adulterants removed -- clay, sand, water -- after which it is ready for use.

And all these complex operations are performed in the compressor shop, which the gas processors call the heart of the facility. It is operated by only three machinery operators and a dispatcher. Seeing the vast, complex interweave of pipes and valves, it is hard to believe that so few people are controlling these powerful, roaring machines.

In any case a high degree of professional skill, knowledge and great diligence are required to master this highly complex equipment.

"We met last month's gas pumping target by 104 percent," stated facility party bureau secretary V. L'vov. "And for the second quarter of this year our station took second place for the USSR Ministry of Gas Industry and the Zapadtransgaz Territorial Association."

Behind these figures stand hard work by this small workforce. Precision, attentiveness, excellent care of the machinery, prompt preventive maintenance and high-quality repairs -- here lies the "secret" of the fine performance by the gas plant workers. Compressor shop equipment is situated both on and under the ground, indoors and outdoors, and linked by dozens of walkways; one must walk several kilometers to tour this highly complex facility.

Together with the names of leading compressor shop workers G. Prostakov, a maintenance mechanic, and V. Fomichev, a machinery operator, one could also list the names of all machinery operators and dispatchers who ensure that the station operates smoothly. Hoist operator V. Minayev does a good job, and driver A. Silin'sh is also highly respected.

Additional pledges were made on the station shifts and in the brigades in honor of the 60th anniversary of establishment of the USSR. The principal pledges involve overfulfillment of the year's gas pumping plan and achieving savings in oil, electric power, spare parts and materials.

The facility is continuously expanding. Construction of a new machinery shop is presently in progress, and this means that the daily pumping capacity will increase by a factor of 2-2.5. All this of course will require additional efforts by the workforce. And the station personnel are already looking for reserve potential to improve their work efficiency. They well understand that this determines uninterrupted supply of natural gas not only to the economy of Latvia but of the other Baltic republics as well, which receive "blue fuel" from Inchukalns.

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OIL AND GAS

CASPIAN DRILLING PLATFORM OPERATIONAL

Baku VYSHKA in Russian 19 Sep 82 p 1

[Article by fitter-assembler M. Byshevskiy, Construction and Installation Administration No 4, "Kaspneftegazstroy" Trust, and correspondent O. Nechipurenko: "Island at Sea"]

[Text] At the beginning of the shock week in honor of the 60th anniversary of the USSR's formation devoted to workers of petroleum and gas industry, VYSHKA reported that construction of a unique deepsea permanent offshore platform was completed at the "28 Aprel'" offshore deposit. Recall that it was installed at a record depth of 113 meters, and that is is intended to drill 12 wells. This week the state commission accepted this structure, one with no equals in the country, for operation. The story of how this unique facility was created and of the first successes of two tunneling brigades from the "Bukhta Il'icha" Offshore Exploratory Drilling Administration working on it is told below.

Painted in bright colors, the two well-proportioned drilling rigs could be seen from afar. "Twins" is what the drillers call them, half endearingly and half jokingly. And the first impression left by this foundation, which stands on 11 supports a meter and a half thick and reaching 80 meters to the seabed is one of strength and reliability.

The 10,000 tons of high-strength metal from which the complex interlocking metallic structures of the platform were created with the help of scientists from the Institute imeni Paton were assembled with real jeweler's precision. It would be sufficient to point out that the two 2,500 ton blocks supporting the platform, which has an area of almost 4,000 square meters, could not deviate from each other axially by more than 100 milimeters according to the requirements of planners from the "Gipromorneftegaz" [not further identified] institute! And this precision was achieved at the first attempt by the installer brigades from the "Kaspneftegazstroy" Trust's Construction and Installation Administration No 4, headed by Dmitriy Boldyrev and Viktor Tat'yanin. The brigades were assisted by expert crane masters Oktay Verdiyev and Anatoliy Litvinov from the "Azerbaidzhan" floating crane. But then the trouble began: With its unusual force, during the night the underwater current shifted the

unsecured block from its required position. Moreover a storm began--a common occurrence in this section of the Caspian.

With improbable effort the installers managed to secure the block at its previous position. We were told that Ivan Began distinguished himself especially in this effort: He demonstrated examples of true heroism several times--both during installation of the modular blocks carrying the drilling equipment and in other less complex operations.

Now all of these difficulties were behind. The brigade from the "Kaspmorremstroy" Trust's specialized Repair and Construction Administration No 4, headed by foreman Nariman Mamedov, covered the platform with a dependable anticorrosion coating, so that the structure could be used for its intended half-century of continuous operation. And soon the powerful hearts of both drilling rigs came to life with an output of more than 10,000 horsepower: Drilling of the first two wells, No 2 and No 12, began.

A competition for an honorable welcome to the 60th anniversary of the USSR's formation unfolded between the two drilling collectives within the very first days of work. The driller collective headed by platform chief K. Abdurakhmanov and foremen A. Koloshin and M. Sultanov completed its annual drilling quota with the drilling of this well.

"It would not have been so easy to do this, had it not been for the help provided by our rivals in the competition," said foreman A. Koloshin. "The fact is that we are enconuntering a number of difficulties in upgrading the new equipment, and we can resolve them only through joint effort."

One need not look far for examples. After the first 1,000 meters were drilled in accordance with the geological-technical order, a decision was made to increase the density of the drilling fluid and subject it to chemical treatment. It should be noted that the equipment used for this and other purposes on the new platform represents the latest word in technology. But no matter what they did, the drillers could not get the pneumatic system that carries the weighting compound--barite--from three 84-ton hoppers to the mixing unit to work normally. It was only after the two collectives combined their efforts and thoroughly analyzed the drawings that they were able to get the process going.

Every member of the brigade has mastered a minimum of two specialties. Motor mechanic Fedor Pavlovich Zaychenko is literally a jack of all trades: He can do anything. Taking an active part in the assembly of all modules--from the first to the last, he introduced a number of innovations insuring trouble-free operation of the platform. And one can imagine how much there is still to do! The stern beauty of the spacious machine room creates the initial impression that everything here has been raised to perfection. But the drillers feel that this is far from so.

"Here, for example, in place of the hydraulic dust extractors, which we have decided to do without," Idris Movsumov, deputy chief of the drilling rig explained with enthusiasm, "we will set up a laboratory to control the parameters

of the clay drilling fluid. This will make it possible to continually determine the quality of flushing fluid leaving the well and support an accident- and complication-free tunneling operation."

Workers from Astrakhan, with whom the subjugators of the Caspian have had close long-standing ties of brotherly friendship, are actively helping the latter.

Specialists of the "Elektroradioavtomatika" Installation and Troubleshooting Administration--senior engineer A. Sakhnin and installer V. Bantya--are taking the bugs out of a long-distance communications system, loudspeakers and telemetric units, of which there are such a large number here. And were we to stretch out all of the receiving-transmitting lines of the apparatus installed aboard the new platform into a single line, its length would be in the tens of kilometers.

What is especially important is that the platform is well prepared for lengthy work on its own. Drilling will not be stopped even by cruel storms during which not a single vessel could approach the platform. A 100-ton reserve of diesel fuel and fresh water and a 150-ton cement reserve were foreseen aboard the platform for this event. And in cases where it will be impossible to get the drilled out rock ashore, it will be burned in special electric furnaces designed by the Baku Electrothermal Equipment Plant.

"The future of our drilling administration lies in deep-sea permanent platforms such as this," said Amir Asadovich Gasymov, chief of the "Bukhta Il'ich" Offshore Exploratory Drilling Administration. "Having begun detailed exploration and development of the "28-Aprel'" petroleum-gas field, in the very near future we will be able to make a substantial contribution to strengthening the country's fuel and energy potential, in accordance with decisions of the 26th CPSU Congress."

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OIL AND GAS

AKHTMA COMBINE PROVIDES CONSTRUCTION MATERIALS TO OILMEN, RAILROAD

Tallinn SOVETSKAYA ESTONIYA in Russian 1 Oct 82 p 1

[Article by unofficial correspondent S. Popov: "For Tyumen Oilmen"]

> [Text] "Ship reinforced concrete articles and shale-ash heat insulating panels to Tyumen oilmen and BAM [Baykal-Amur Rail Trunkline] builders ahead of schedule."
>
> (From socialist pledges of the collective of the Akhtma Construction Materials Combine).

The Akhtma combine is the principal supplier of construction materials. It has been and continues to be a supplier of pillars, girders and panels to a mineral fertilizer plant presently under construction, to the "Estoniya" mine and to other facilities of the shale basin. Construction materials for erection of cow and calf barns, pigsties and potato storehouses are shipped in large quantities to the republic's kolkhozes and solkhozes from Akhtma. In the second year of the 11th Five-Year Plan the combine's collective pledged to ship 218 cubic meters of prefabricated reinforced concrete for construction of residential buildings, hundreds of cubic meters of shale-ash heat insulating panels, 1,200 cubic meters of glass wool and articles made from it, to be used in heat-insulating pipelines, to construction sites in Tyumen Oblast--to Siberian oilmen and to builders of the BAM.

A socialist competition for early completion of the annual program and of pledges adopted in honor of the 60th anniversary of the USSR's formation became widespread in the combine's shops. The collective of the reinforced concrete structures shop was the winner (chief, Vladimir Fedorov). The shop's workers produced reinforced concrete blocks used in construction of the basements of houses for Tyumen oilmen. In a year, as was noted earlier, the shop must ship 218 cubic meters of such blocks to oilmen of the Far North. As of the second half of September they had shipped 224.19 cubic meters of blocks--almost 6 cubic meters more than the annual program.

The production conveyor begins in the reinforcement metal shop. The shop's deputy chief, Liliya Tenno, introduced us to the best reinforcement metal brigade leader, Anna Baranova. Invariably, her brigade always wins the competitions.

"The reinforcement metal workers are never to blame for work delays: We supply the frameworks for panels and blocks to the concrete casters with time to spare. The workers themselves will tell you that," A. Baranova explained.

We approached block framework welders Nikolay Sorkin and Nikolay Pekarev.

"The assignment for the oilmen of Tyumen was an urgent one. Each day we reached an output norm of 140-150 percent, making it possible for casters in another shop to manufacture the panels themselves faster," said the welders.

Their words were also confirmed in the neighboring shop. The shop's deputy chief, Raisa Krupovskaya, led us to the fourth bay of the building, where Peedo Vokht's casting brigade was working. They are the ones who made foundation blocks for the basements of residential buildings for oilmen of the Far North.

"This was an especially important order. We completed it ahead of schedule, and with high quality," said the brigade leader.

And in fact, by September the casters completed their annual quota.

Shale-ash heat insulating panels for Tyumen oilmen and for builders of Kichera Station on the BAM are manufactured in the light concrete shop. Vyacheslav Shlyk, the combine's deputy director, who acted as our escort, emphasized that these panels were made in the shop basically from shale ash--wastes from the Akhtmeskaya Thermal Electric Power Plant, located next door. His statement was fully confirmed. Yevdokiya Bredneva's caster brigade was working here this day. She showed how they manufacture top-quality panels from shale ash to insulate the ceilings of residential buildings for Tyumen oilmen and builders of Kichera Station on the BAM. Shale ash from the waste dumps is ground, enriched with aluminum powder and sulfonol and diluted with water. The mixture is then poured into molds that had been steamed in chambers. Then the solidified material is cut into panels of the required dimensions. And they are ready for their long journey.

The work of the caster brigade and its shift mates was summarized by the shop deputy chief, Viktor Fadeyev.

"The brigades of all three shifts, led by Yevdokiya Bredneva, Anatoliy Yermak and Vladimir Skotnikov, are working with enthusiasm. This year we have to manufacture 175 cubic meters of panels for Tyumen oilmen and 200 cubic meters of panels for builders of Kichera Station on the BAM. We are shipping our products ahead of schedule," noted V. Fadeyev.

The Akhtma Construction Materials Combine earned the perpetual Red Banner of the Kokhtla-Yarva city party committee and city executive committee for its results in the socialist competition for the second quarter.

11004
CSO: 1822/38

RIGA, BAKU OFFSHORE DRILLING INSTITUTES COOPERATE

Baku BAKINSKIY RABOCHIY in Russian 29 Sep 82 p 3

[Article by special correspondent Dzh. Nukhbalayev: "There Will be Oilfields in the Baltic as Well"]

> [Text] "The stage of developed socialism is marked by expansion and deepening of Azerbaijan's productive-economic, sociopolitical and cultural ties with all fraternal republics."
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> From the Azerbaijan Communist Party Central Committee decree "On Measures for Further Development of International Ties of Azerbaijani Laborers With Laborers of Fraternal Soviet Republics."

Far from shore, preparations are being made aboard a floating drilling rig to drill another well, and closer in, a formation of steel islands, from which wells had been drilled earlier, is now working the oil and gas fields. Oil and natural gas are being pumped from the seabed into the Baltic basin and from there by pipeline to the continent. This oil field is called the Baltic "Neftyanyye Kamni."

The reader will have to excuse the author for painting such a bold picture in his imagination, but it is not entirely fantasy. True, one can find neither a fan of railroad trestles nor derricks nor even oil and gas wells in the Gulf of Riga. This is matter for the future. For the moment, however, engineers are exploring and carefully studying the seabed of the Baltic and preparing the necessary resources for development of the sea's depths. And this work is proceeding in close cooperation with a number of the country's scientific institutions, to include scientists and planners of the Riga VNIImorgeo [All-Union Scientific Research Institute of Marine Geology and Geophysics] and the Baku "Gipromorneftegaz" [not further identified] institute.

"Our relations with 'Gipromorneftegaz'?" Candidate of Geological Sciences Arnis Petrovich Brangulis, deputy director of the VNIImorgeo, echoed our question.

"The friendliest, the strongest. A former Baku employee, Ali Samedov, is even working for us as the deputy chief of the special design office."

"Cooperation with our colleagues in Baku is helping us to develop in a number of directions. It would even be difficult to imagine how we could have conducted our experiments on introducing and testing the new machine units and instruments without the highly rich experience of 'Gipromorneftegaz'," Vladimir Ivanovich Medko, chief engineer of the VNIImorgeo seconded the deputy director's opinion. "Just about all of the leading specialists here got a substantial education and served a unique form of apprenticeship in Baku, at Neftyanyye Kamni and in Sangachaly."

By the end of the present five-year plan the number of floating drilling rigs and drilling vessels outfitted with the latest equipment to dig wells at sea up to 6,500 meters deep will grow in our country by a factor of 2.5. We have yet to subjugate sea depths that have been inaccessible until just recently.

"This is an important task," explained the director of "Gipromorneftegaz," Akif Mamedovich Dzhafarov, "one which we have already started working on in the Caspian. Our colleagues in Riga will help us in this effort."

Permanent platforms for drilling on the Baltic shelf and on the shelves of other seas are now being built in accordance with plans of the "Gipromorneftegaz." The "Kaliningradmorneftegazprom" Production Association has already begun building these structures in keeping with Baltic design requirements. These structures were planned in Baku as well.

The conquest of sea depths requires special floating drilling rigs. They must be outfitted with the latest, complex devices, equipment and instruments. It was in this area that interaction between the Baku "Gipromorneftegaz" and the VNIImorgeo, which is in Riga, turned out to be extremely valuable.

"We are cooperating scientifically in many areas," said F. Samedov, "Gipromorneftegaz" deputy director for scientific affairs. "Our comrades in Riga have accumulated considerable experience in marine geology, and we have done so in offshore drilling. They take advantage of our experience, and we make use of their achievements in geology."

There are problems which must be resolved jointly. Take as an example investigation of the seabed. Latvian scholars analyzed the geological and technical characteristics of subsoil to a depth of 20 meters.

"Their method is rather advantageous in economic respects, and it permits us to study subsoil relatively quickly," explained Lev Fedorovich Sal'nikov, director of the "Gipromorneftegaz" soil analysis laboratory. "Baku scientists have been highly successful in studying the characteristics of the seabed to a depth of 200 meters: Work has started to create technical resources for these purposes."

"The results of the scientific developments of our Baku colleagues have great significance, and we will make extensive use of them in the forthcoming work," said the chief scientific associate of the VNIImorgeo, Candidate of Technical Sciences Yevgeniy Yur'yevich Shekhter.

"The experience of our Baku colleagues is to us a unique sort of textbook, a guide," added Candidate of Geological-Mineralogical Sciences Iyeva Lyudvigovna Dzilna, director of the VNIImorgeo laboratory of engineering geology. "In turn, we are also trying to make a noticeable contribution to the overall effort. Our scientists and engineers have created apparatus that can be used to determine the structural properties of subsoil in natural bedding conditions. This apparatus is now in Baku, undergoing testing; it is presently in its introduction stage."

The seabed.... How many secrets it still conceals from man.... And after all, the stability of piles and their carrying capacity depends directly on our knowledge of the characteristics, structure and occurrence of benthic soil layers.

Thus it is no surprise that scientists of the kindred institutes are faced by important tasks associated with studying the mechanical characteristics of soft flowing muddy soil. They are presently considering the possibility for reducing the length of piles driven into the seabed. Reduction of the length of piles by at least 1 meter promises a solid savings of assets and materials on a countrywide scale.

Although the floor of the Caspian and the floor of the Baltic differ in structure, as was noted by V. I. Medko, chief engineer of the VNIImorgeo, the two do have much in common as well.

"The institute in Riga was founded just a few years ago," said deputy director A. P. Brangulis. "But it seems to us that by cooperating with us, our friends in Baku will not be the worse off for it. In just the last half year our scientists met for roundtable discussions three times. Soon another group of scientists and engineers will travel to Baku to acquaint themselves further with the experience of 'Gipromorneftegaz' in offshore drilling."

One common concern of the kindred institutes in Azerbaijan and Latvia is creation of engineering-geological vessels for explorations at sea. Baku designers are planning the production of this vessel, while Riga scientists are creating the necessary instruments. The institutes are also being aided in their work by the collective of the State Institute for the Planning of Foundations and Substructures of the USSR Ministry of Installation and Special Construction Work, and by builders and planners from Leningrad.

Riga scientists and engineers have authored a new seismoacoustic method. At present this method is undergoing testing on the Caspian in association with offshore drilling.

"Judging from everything, the results will be positive," said the chief of the integrated marine geological party, Candidate of Geological-Mineralogical Sciences Ivan Alimovich Timofeyev.

Intensive joint scientific research aimed at developing the seabed is being conducted productively be scientists Ye. Shekhter, V. Artamonov, S. Fedorov, A. Samedov, I. Fal'kov, I. Dzilna (VNIImorgeo), F. Samedov, E. Kurbanov, D. Gasanova, L. Sal'nikov, A. Guseynova ("Gipromorneftegaz") and others.

Doctor of Geological-Mineralogical Sciences Tat'yana Davydovna Bartosh, VNIImorgeo's scientific secretary, is not completely satisfied with the institute's business contacts with Baku at the moment.

"Our ties are still inadequate," she said, "but the future looks hopeful. We have a graduate student program in which we can train specialists in marine geology, geophysics and engineering geology. We would be delighted to accept comrades from Baku into our graduate student program. And Riga needs specialists in offshore drilling. We are awaiting help in training them from our friends in Baku."

Colleagues of the VNIImorgeo created a unique apparatus--a pressiometer, which is essential to measuring the influence of rolling seas on drilling rigs and their resistance to winds. Presently this apparatus is undergoing testing on the Caspian: Its parameters are being recorded, and its shortcomings are being noted. After improvements are made and problems are corrected, series production of the pressiometer will begin.

Ye. Shekhter, one of the inventors of the pressiometer, said: "We are receiving continual assistance in organizing the testing operations from scientists of the 'Gipromorneftegaz,' D. Gasanova and V. Sarkisov."

Baku oilmen have substantial experience in organizing labor safety, firefighting at sea and capping oil and gas gushers. VNIImorgeo scientific associate V. Artamonov stated that this experience was what was laid at the basis of preparations for the "Methodological Recommendations on Selecting an Optimum Number of Fire Boats for Offshore Deposits" tailored for the Baltic.

Baku and Riga are separated by a distance of 3,000 kilometers. But this does not interfere with the friendship and cooperation and with the interaction and mutual assistance of the two scientific institutions. Within a short time the collectives of the scientific research institutes have not only organized especially strong working ties between themselves, but they have also become friends. And this is a law of our life.

11004
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OIL AND GAS

SEVENTH URENGOY GAS REFINERY OPERATIONAL

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 7 Sep 82 p 1

[Article by M. Umanskiy and L. Zorin: "The Wide Stride of Urengoy"]

> [Text] The seventh integrated gas preparation facility has been placed into operation at the Urengoy gas condensate deposit.

The aluminum structures of the new facility could be seen from afar, towering over the tundra. It is essentially a full-fledged plant at which crude gas extracted from the deposit is prepared for its trip of many thousands of kilometers to the country's center and the West.

The builders, assemblers and operators gathered together in the control room. The last inspection of the production equipment was coming to an end. It was still quiet in this huge pavilion, chock-full of complex instruments and devices. All that could be heard were voices confirming that it was ready to start up. Finally the chief of the facility, I. Kuznetsov, gave the command:

"Ready, start!"

One of the members of the starting brigade opened the valve on the gas inlet pipe. The rest used brushes to apply soap film on the flange, threaded and welded joints: This tested method of revealing leaks was now being applied even after ultrasonic fault detection methods. Twenty atmospheres..., forty..., ninety! And all other sounds were drowned out by the deafening hiss of the suppressed "genie" as it escaped from the ground. The seventh facility was now operational!

"By the way, it was not all that long ago that it took much more time for such tests," said R. Suleymanov, chief engineer of the "Urengoygazdobycha" Association. "Why? Just compare the last three facilities with the ones built previously, and you'll see."

The difference is immediately obvious even to a nonspecialist. While the first facilities are literally hog-tied by pipelines and utility lines, the shops that sprung up later on are bright and spacious. The huge separator and absorber "barrels" and the steel filter tanks have been replaced by multifunctional

modular columns. These "combines" have reduced the metal content of the production systems by a factor of three and raised the handling capacity of each one. The time to assemble them from highly prefabricated modules was also halved.

But even this progressive concept soon became a thing of yesterday. The gas field operators have already tested a facility of a new generation in cooperation with specialists of the Ministry of Chemical and Petroleum Machine Building. The impact is expected to be colossal, primarily in regard to construction time.

The payoff from scientific-technical progress is quick at Urengoy. The output capacities of the new facilities are growing, but at the same time they are becoming more and more compact. At the most recently introduced facility, the seventh, builders and gas field specialists decided for the first time to locate the equipment in two tiers, making efficient use of every cubic meter of space. Today there are no such crude gas refineries anywhere else in the world.

The possibilities of Urengoy are such that we can increase extraction of gas from the beds even more. At the beginning of the deposit's development about 300 wells were drilled here, in a zone of permafrost. But were we to compare the deposit with a layered pie, the drillers of the subsoil have not yet gone deeper than the upper layer of the pie's filling, in which the main reserves of natural gas are concentrated. Unique experience in drilling under complex Arctic conditions is gradually being accumulated. Another two expeditions--from the Kuban and the Ukraine--have come to the aid of Tyumen drillers. And now a major offensive has been started upon the lower crust--the deep horizon, rich in gas condensate.

Our "Ural" drove straight for a tower peering over the horizon. Foreman Ye. Shklyarskiy's brigade--part of an expedition from the Krestishchenskiy Drilling Operations Administration--was drilling another well. A critical operation was proceeding at the moment: A steel column of pipes was being lowered into the well as a casing through the rock. Kharkov drillers N. Kuz'menko, A. Ushakov, Kh. Nuriyev and other members of the brigade worked fast. Their nimble movements and the efficient commands showed that they all understood each other intuitively.

This was the second operating well dug by Kharkov drillers working according to the watch method in the Far North. The previous one, located about a hundred meters away, was already producing industrial condensate--the first such well at Urengoy. It will permit maximum utilization of the potentials of an experimental diesel fuel facility using inexpensive local raw material. By the end of the year its productivity should grow by another time and a half. This means that continually less fuel would have to be shipped here the long distance from the south by water: Urengoy is transforming into a "self-service" operation.

But not all of the problems at this unique deposit are being solved as required by the times. The gas extractors are especially concerned by the serious delays in construction of the field's gas collector. Out of the 147 kilometers of piping that must be installed in the tundra this year, subdivisions of the Ministry of Construction of Petroleum and Gas Industry Enterprises laid only about

60 kilometers by the end of August. The laying of so-called "loops"--pipelines joining the wells to the integrated gas preparation facilities--is also behind. It is for this reason that 10 wells that have already been drilled are standing idle at Urengoy.

Builders are failing to meet the standard schedule for erection of the eighth integrated gas preparation facility. It was initially planned to begin operation in the second quarter, but there is still much work to do. Erection of a repair base for gas field and drilling equipment, needed so much by Urengoy, is being postponed from one year to another.

"Many of these problems can be attributed to growing pains," said R. Suleymanov. "But nonetheless we would wish that the difficulties were fewer in number."

Novyy Urengoy is growing right before the eyes, block after block. Multistory residential buildings have risen where there was nothing but bare tundra just a few years ago. The forward detachments of builders from other cities, mainly Leningrad, erected them in the northern modification, with triple glazing. There is an operating sports complex, a department store and a bakery, and erection of a dairy has been completed.

This unique gas deposit in Siberia has now reached maturity. Man has established himself solidly here, and he is organizing his life in all of its aspects, with a sense of permanence. And this is natural: Urengoy has a long life and much work ahead of it.

11004
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BRIEFS

TURKMENISTAN OIL FIELD INNOVATORS--The Oil Field No 2 collective is leading the competition among the Nebitdagneft NGDU [Oil and Gas Administration] oilfield workers in honor of the 60th anniversary of the founding of the USSR. Since the first of the year, this team has extracted several thousand metric tons of oil above the planned goal. The components of this success have been the introduction into operation of new equipment and technology. Here for the first time in the "Turkmenneft" Production Association use has been made of the UGR gas distribution unit, and now natural gas is fed to the gas-lift wells automatically. In addition to the economic advantage this innovation has improved extraction effectiveness and facilitated servicing personnel operations. Two blocks of the BGR-A type have been introduced in this five-year plan in the oil field where the gas-lift technique for extracting "black gold" is used; this has improved markedly the technical and economic performance. In the mechanized oil extraction program the oilfield workers began, with the aid of the TurkmenNIPIneft [Turkmen Scientific-Research and Planning Institute for the Petroleum Industry] scientists, to use downhole gas separators. With their introduction, the flow rate of the low-output wells has increased to ten metric tons. There were also improvements in the inserted downhole pump service life and the equipment operating time between overhauls increased. Three oil fields were changed over to the electrocentrifugal recovery technique, leading to accelerated recovery of liquid fuel. Major attention is being devoted to the existing wells and to the implementation of new wells which have just been drilled. Plans are for the introduction of five new wells this year, as a result of which the daily oil output will increase by 130-150 metric tons. The geological service has played a large part in the implementation of the intensified oil and gas recovery techniques; this service is headed by L. A. Shmatkova, senior geologist and bolder of the Order of Red Banner of Labor. She has devoted nearly thirty years to her chosen profession. It is thanks to her that dozens of wells have taken on a "second wind" and become highly productive. The innovators of the industry are preparing to honor the coming anniversary of the USSR with new achievements. This year alone they have introduced twelve improvement suggestions, the implementation of which has improved labor productivity and production effectiveness. Particularly important contributions in this regard have b-en made by T. Khodzhaev, veteran of the Second World War and experienced oilfield operator, and by G. Berdyev, Party member and supervisor of the second operating section. [By A. Davliev, mining engineer of the "Nebitdagneft" NGDU] [Text] [Ashkhabad TURKMENSKAYA ISKRA in Russian 3 Aug 82 p 2] 9576

NEW OIL FIND--The Kuban is one of the oldest oil producing regions of the nation. The first well in Russian was drilled here. A new oil deposit was recently discovered near the Starotitarovsk settlement in the Temryuksk region. Its main advantage is the high quality of the combustible crude and the shallow depth of the productive strata. Wells are now being drilled here at accelerated rates under complex geological conditions by drillers of the team led by V. Leshchenko. In the first six months alone the exploratory geologists have exceeded by 18.3 percent the plan with respect to well drilling footage. [By N. Sedov, Krasnodar] [Text] [Krasnodar SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Aug 82 p 2] 9576

OIL PROSPECTORS SUCCESSFUL--Expanding the competition in honor of the 60th anniversary of the founding of the USSR, the team led by drilling supervisor G. Suleymanov from the Kyursangya UBR reported early completion of the eight-month drilling footage goal. With skillful utilization of the latest drilling techniques and technology, the team completed several days ahead of schedule the drilling of exploratory well No 35 with design depth 4800 meters. The drilling costs were 310,000 rubles below the projected figures. This outstanding team has already started drilling another exploratory well in the promising Kyursngya oil deposit. The exploration team, looking for storehouses of natural fuel, resolved to drill the new (410th) well to the design depth of 3800 meters ahead of schedule. [By, S. Garaev, Kyursangya] [Text] [Baku VYSHKA in Russian 10 Aug 82 p 1] 9576

OFFSHORE DRILLING SEASON OPENS--Near the northern coast of Sakhalin Island the crew of the OKhA floating drill rig is making exploratory oil drillings. The first well of the season has been drilled on the Sakhalin shelf and oil flow has been achieved from a depth of more than 2000 meters. The climatic conditions in this area are difficult for drilling. It often rains in the summer, the Okhotsk Sea is often stormy, and typhoons are not unknown. But in spite of the capricious nature of the weather the exploratory oil drillers continue the search for "black gold" and are ahead of the planned schedule. They are meeting the high labor productivity goals adopted in honor of the 60th anniversary of the founding of the USSR. [TASS] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 23 Aug 82 p 1] 9576

DELIVERY OF NATURAL GAS--Before delivery natural gas must have the moisture, dust and other contaminants removed. For this the scientists of the Belorussian Technological Institute imeni S. M. Kirov together with the specialists of the Central Design Bureau for Oil Equipment in Podol'sk have developed fundamentally new equipment for drying natural gas. Its construction is based on the principle of straight-flow acceleration of the liquid and gas with subsequent separation of the liquid from the gas in swirl flow chambers. Tests in the Medvez'e gas field showed that the productivity of this equipment is twice that of the existing models, and it weighs only one third as much. In addition the depth of drying is improved and the valuable absorbent-reagent losses are reduced. The equipment can also be used to separate condensate from natural gas. Series production of the new unit has been assigned to the Volgograd Oil Machinery Plant imeni Petrov. The expected economic effect from the introduction of a single unit is 210,000 rubles a year. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Aug 82] 9576

OIL TRAP--An article under this heading was published in PRAVDA on 24 June on the deficiencies in utilization of wellhead gas in the Tyumen oil fields. A. Valikhanov, deputy minister of Minnefteprom SSSR [USSR Ministry of the Oil Industry] reported that the article was examined in the Ministry. The questions raised in the article are urgent. Several large facilities, including those in western Siberia, were constructed during the 10th Five-Year Plan for collecting, processing and transporting gas. Thanks to the efforts of the oil field workers, gas processors, constructors and assemblers the utilization of wellhead gas has improved significantly. However the situation still cannot be considered satisfactory. In western Siberia in 1982 about 30 percent of the wellhead gas is still not being used. This is due to several factors: first of all the lag in the construction of facilities for collecting, transporting and processing the wellhead gas. During the 1976-1980 period with planned construction and assembly operations in the gas industry amounting to 847 million rubles only 666 million ruble were expended. The gas processing plants were put into operation with a delay from the planned dates. Because of slow construction of the Tobol'sk petrochemical complex and also because of the lack of transport capacity the plan for the production of unstabilized gasoline was not met. Minnefteprom personnel studied and approved, and the State Expert Commission of Gosplan USSR verified the "Scheme for collecting and transporting wellhead gas and the location and utilization of gas processing plants in western Siberia until 1990." Plans are that by the end of the present Five-Year Plan over 85 percent of the wellhead gas will be utilized. [Text] [Moscow PRAVDA in Russian 1 Sep 82 p 1] 9576

USE OF SUN AS COOLANT--Refrigeration units developed by the physics department of Bukhara Pedagogic Institute operate on very cheap energy--solar energy. Series production of these units is under way. The cooler is brought into operation by a system of interconnecting reservoirs, filled with ammonia. The solar rays heat the ammonia and it flows into the "capillaries" of the evaporator, reducing sharply the temperature in the cooling chamber. This apparatus is capable of producing 8 to 10 kilograms of ice a day. It is intended for shepherds and geologists. [TASS] [Text] [Moscow PRAVDA in Russian 24 Aug 82 p 1] 9576

SAND DUNES ARE NO PROBLEM--The development of a new gas field is under way among the sand dunes, the so-called northern block of the Sovetabad basin, located 26 kilometers north of the Dauletabad gas deposit. The constructors have started leveling the ground and erecting the first facilities. It is interesting that the Saratov designers with the aid of the scientists of the Institute of Deserts of the TuSSR As proposed the most rational scheme for locating the large gas extraction complex in the desert with the objective of protecting it from the drifting sands. The costs of restraining the sandy surfaces in the new industrial region were reduced markedly. Before making recommendations to the designers on the layout of the new field among the shifting sands, the scientists had to answer the question: just how do the dunes advance in the Kara-Kum desert? The experimentation was carried out in the eastern part of Turkmenistan. It was found that the dunes travel toward the north in the winter at a rate of three meters a year, while in the summer they travel toward the south at the same speed. It was also found that the same grains of sand are lifted from the depth of the dune to the surface

once every 15 years. All this information helped the specialists to simulate the complex pattern of formation of the present-day relief in the Kara-Kum. [Turkmeninform] [Text] [Ashkhabad TURKMENSKAYA ISKRA in Russian 15 Aug 82 p 2] 9576

TO THE DEPTHS OF MANGYSHLAK--The drilling teams of the integrated "Mangyshlakneftegasrazvedka" expedition are continuing the search for oil and gas on the peninsula. The teams led by T. Seitov, R. Mataybaev, S. Gizatov and B. Kosmagombetov have demonstrated exceptional drilling rates and excellent work organization; they are leading the socialist competition in honor of the 60th anniversary of the founding of the USSR. [By correspondent E. Matskevich, Shevchenko] [Text] [Moscow IZVESTIYA in Russian 19 Jul 82 p 1] 9576

TONS OF OIL OVER THE PLAN--The Tatar SSR oil workers are increasing their "over-plan" output. They have produced more than 130,000 metric tons of oil above the goal since the beginning of the year. In only seven months the oil workers of the "Tatneft" Production Association have delivered to the national economy more than 40 million metric tons of "black gold." This is a major contribution to meeting the socialist goals adopted by the collective in honor of the 60th anniversary of the founding of the USSR. The workers of the Al'met'evskneft Administration have delivered more than 20,000 metric tons of oil above the planned figure. Collection of wellhead gas is also exceeding the planning goals. Here the best results are those of the collectives of the Aznakaevsk and Al'keevsk regional engineering and technological services. Since the first of the year more than 6 million cubic meters of wellhead gas over and above the plan has reached the Minnibaevsk gas processing plant. [By B. Umyarov, Al'met'evsk] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Aug 82 p 1] 9576

NEW TANKER LAUNCHED--Still another labor victory has been achieved by the shipbuilders of the "Okean" Ship Construction Plant in Nikolaev. The oil tanker "Ivan Tevosyan" has gone to sea for its running trials. The displacement of the new ship is 130,000 metric tons. Its construction time was a month and a half shorter than that of the preceding vessel. After completing its trials, the oil tanker will supplement the Novorossiysk port fleet. [By nonstaff correspondent A. Magin, Nikolaev] [Text] [Kiev PRAVDA UKRAINY in Russian 9 Jul 82 p 2] 9576

A GUSHER SPOUTS--The workers of the Far East offshore oil and gas exploratory deep-drilling expedition have had great success. The collective headed by engineer V. Gul drilled well No 11 from the OKhA floating drill platform in the Odoptu Sea area. During testing the well yielded a powerful free flow of oil. [By V. Ryabchikov, nonstaff correspondent, Yuzhno-Sakhalinsk] [Text] [Moscow PRAVDA in Russian 25 Aug 82 p 1] 9576

ROAD NEEDED NOW--The new group of oil deposits recently discovered in the northern part of the Nizhnevartovsk region has been termed the Tyumen field. By the end of the year the oil workers will begin operation of the Nong-Egansk and Khokhryakovsk deposits. The construction crews of the Nizhnevartovskdorstroy Trust are now laying a concrete road to these fields,

and this main line will be put into operation in the fourth quarter of this year. But the road is needed today. It will facilitate access of the drillers to the new areas. Understanding this, the management of the road trust created all the conditions necessary for completion of the route four months ahead of schedule. The excavator crews and the truck drivers worked at an accelerated pace. The road was ready to be paved. But the transport facilities of the trust were not capable of transporting the concrete slabs in such a short time. Then the Komosmol members of Nizhnevartovskdorstroy turned through the city paper to the youth of the Nizhnevartovskneftegas Production Association with an appeal to organize shock brigades and deliver the cargo to the road site on the weekends. The Komsomol members of the Fourth Technological Transport Administration sent off the first caravan consisting of 18 heavy-cargo trucks. [By V. B. Syrpin, Tyumen Oblast] [Text] [Moscow KOMSOMOLSKAYA PRAVDA in Russian 22 Aug 82 p 1] 9576

FIFTY THOUSANDTH CEMENTER--The 50,000th well cementing unit has come off the production line at the Grozenensk "Krasnyy Molot" Plant. During the last quarter of a century the production of these machines, which are widely used in the completion of oil and gas wells, has increased by more than ten fold. The "jubilee" model, fabricated by one of the best teams (headed by Yu. Mineyev), was delivered to the Urengoy drillers. [By M. Oziev, Groznyy] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Aug 82 p 1] 9576

TASBULAT OILFIELD--Mangyshlak oil workers have brought the new Tasbulat field into production 3 months ahead of schedule. Yesterday the first tons of crude entered the many-kilometers-long pipeline to the seaport of Aktau, to be transported by tanker to oil refineries. A joint contract agreement by drillers, construction people and operators ensured accelerated production start-up of this field. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 9 Sep 82 p 1] 3024

TRUCK FUEL DIRECT FROM WELL--Four truck terminals in Uzbekistan are now being supplied an unusual fuel. Fuel for diesel trucks comes direct from wells in gas fields on the Karshi Steppe. As scientists from the Tashkent Automotive Institute determined, condensate produced from these wells together with natural gas, can go right into truck fuel tanks without preliminary processing. Just a small addition of regular diesel fuel makes it possible to operate trucks without additional engine tuning or adjustment. Government tests have confirmed that trucks operating on condensate release into the atmosphere much less toxic substances, but of course the principal gain is fuel savings. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 9 Sep 82 p 2] 3024

CSO: 1822/303

COAL

SOVIET-HUNGARIAN COOPERATION

Moscow PRAVDA in Russian 15 Sep 82 p 4

[Article by PRAVDA correspondent V. Gerasimov, Budapest: "Miner Protection: Soviet Know-How in Hungary"]

[Text] Jenyö Kerekes met Ernest Kipko when he was attending school in Sverdlovsk. "It was in the 50's," recalls the general manager of the Hungarian Mine Construction Enterprise. "Who would have thought that many years later we would again be brought together by common concerns? I would even say: a common struggle against a constant, major enemy of miners -- subterranean water."

Jenyö Kerekes comes from a family of miners. He knows the catastrophic consequences of water bursting into mineshafts. He himself has experienced it firsthand more than once. The mines in Tatabanya were always threatened by flooding. In this coal basin there are active karst springs which flow under great pressure.

For Hungary, which is poor in energy resources and which is endeavoring to increase coal production, it was extremely important to adopt the Soviet method quickly. It provided reliable protection against water-bearing strata and cut to less than half the time and labor involved in tunneling operations.

Soviet cutting machines, continuous miners, roof bolting and hauling equipment had come to Hungarian mines in the past. Soviet mine construction people had shared their tunneling know-how. Geologists, geophysicists, and drillers had helped discover and survey new coal and bauxite reserves. And now a new area of utilization of Soviet know-how -- adoption of a combined method of fighting subterranean water, developed by E. Ya. Kipko together with a group of engineers at the Spetstamponazhgeologiya Production Association from the town of Antratsit, near Voroshilovgrad.

The first congress of the International Mine Water Association was held this spring in Budapest. It was attended by delegates from many countries. Ernest Yakovlevich Kipko, general manager of Spetstamponazhgeologiya, presented a paper. He was elected vice president of the new organization. He also met his friend from student days, Jenyö Kerekes. They joyfully recalled the years of study in Sverdlovsk, and later the congress delegates visited new mines in the

Tatabanya coal basin. There was plenty to show the visitors in these mines.

In the past two methods of combating subterranean water had been employed: freezing and cementing cavities and cracks. The former method only provided temporary protection. The latter was laborious, costly and, most important, did not prevent water burstthroughs. Kipko and his colleagues set about to formulate an engineering and mathematical method of calculating the entire process of neutralizing water-bearing strata, scientific designing and job quality control. He and his colleagues also began employing different primary cementing materials. In one of the Tatabanya mines, for example, one tenth as much cement was required as would have been needed with the old methods. They now employ natural clays with special additives. The new cementing agents readily "flow" under pressure into all, even the most distant capillaries even prior to advancing the shaft or simultaneously with sinking. Herein lies their advantage.

In Tatabanya one of the executive officers of the coal mining enterprise, Bela Matyas, telling about the effectiveness and advantages of the new method, cited examples of how even before commencing to sink the shaft, setting up on the ground surface the equipment which has arrived from Antratsit, one can ensure a complete "seal-off" with precise accuracy. The successes of our Hungarian friends were noted at the congress of specialists in the Hungarian capital.

"In the past we would in certain places have to leave untouched a layer of coal as a shield. Now the coal is completely removed," stated Pal Gerber, chief geologist for the Tatabanya enterprise, noting another advantage of the Soviet method. "And, the main thing, protection is more reliable now."

He showed diagrams and maps of mines and the entire basin, where cementing operations are continuing. He regretfully drew attention to mine shafts which had been flooded earlier. He recalled how many times he and other Hungarian geologists, drillers, and hydrologists had visited Antratsit, learning to use the Soviet equipment and mastering the new process.

"Now our specialists for the most part can handle the job themselves," stated Pal Gerber. "You should have seen the surprise with which the delegates to the recent miners' congress touched the dry mine shaft walls."

Bela Matyas and Pal Gerber fondly recall Oksana Yur'yevna Lushnikova, chief engineer for cementing operations and hydrodynamic research at Spetstamponazhgeologiya. She frequently visits Hungary as a consultant on development of many new "protective systems." The Hungarian mine construction people have obtained a license for the new method, and now Soviet specialists are helping them find new ways to utilize and apply it; they are also studying Hungarian achievements.

"We were greatly helped by engineer A. P. Kostrikin from the town of Antratsit. For 4 years now he has been sharing his know-how with our drillers and geologists and monitoring the operation of the Soviet equipment and instruments," adds Bela Matyas.

Each year Hungary mines 26 million tons of coal and more than 3 million tons of bauxite. New mines are presently under construction in Tatabanya, Oroszlan, and Pecs. And the experience in combating subterranean water amassed with the aid of Soviet experts is helping sink mine shafts faster, reducing the cost of underground operations, increasing safety, and boosting mineral production.

3024
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COAL PYROLYSIS FACILITY AT KATEK

Moscow IZVESTIYA in Russian 14 Sep 82 p 2

[Article by IZVESTIYA correspondent A. Shcherbakov, Krasnoyarsk: "A Construction Project Needs Smooth Rhythm: Why Construction Was Delayed on an Installation for Processing Kansk-Achinsk Coal"]

[Text] In Krasnoyarsk Kray a gigantic fuel and energy complex -- KATEK -- is being established, based on the rich coal deposits of the Kansk-Achinsk basin. The future of the power industry of Siberia and of the entire country is linked in large measure with development of this coalfield. Coal reserves offer a potential to produce up to a billion tons a year, and by strip-mining.

This coal is presently burned at electric power stations employing a traditional process. But in the future unprecedented state regional electric power stations with a generating capacity of 6.4 million kilowatts each will be constructed in this area. By subjecting the coal to complete processing, oil, gas and other valuable substances will be obtained in addition to electricity.

This process has long since been developed in the laboratory. It was field-tested at an experimental installation at the Sibelektrostal Plant. In Kalinin there is an experimental installation which processes approximately 4 tons of Kansk-Achinsk coal an hour. But all this is on an inadequate scale for KATEK....

Construction commenced on the first commercial-scale high-speed coal pyrolysis facility (ETKh-175) in Krasnoyarsk in 1975, at TETs-2. It is 40 times as powerful as the Kalinin installation. This is a real plant, a "precursor" of future giant KATEK combines.

The general contractor -- the Krasnoyarskenergopromstroy TETs Construction Administration -- was to perform, together with subcontractors, approximately 4.5 million rubles worth of construction each year and to approach start-up by the end of 1981. This has not happened, however.

First they lacked design-estimate documentation -- they were let down by the designers at the Tomsk department of Teploenergoproyekt. Then difficulties arose with placement of orders for nonstandard equipment, a good deal of which was needed, since the facility is essentially one of a kind. Enterprises

willing to accept orders could not be found. Minenergo [Ministry of Power and Electrification] itself was forced to assume the job of order initiator.

Soon full-scale construction began on the Krasnoyarsk Heavy Excavator Plant, and experienced construction workers began to be pulled periodically from the pyrolysis plant construction site to "hotter spots." In the fall of 1981 progress results sadly indicated that subdivisions of USSR Minenergo, Soyuzgidroenergostroy, Glavteploenergomontazh, and Krasnoyarskgesstroy had failed to meet the construction targets for the ETKh-175 facility.

One of the main problems at the construction site is a constant shortage of workers. Formation of a workforce of construction people and future plant operating personnel is being delayed chiefly due to a shortage of housing. About 200 construction workers and installation personnel are being compelled temporarily to be housed on a ...motor vessel chartered from the Yenisey River Steamship Company, which has been set up as a dormitory. Attempts were made to build housing on a shares participation basis with the city executive committee. The 840,000 rubles which have been transferred, however, have not yet produced a single dwelling unit. And how can they obtain housing when the housing construction targets in Krasnoyarsk are only being met by 50 percent due to a poor construction industry base?

It has become clear that additional vigorous measures must be taken to speed up construction on this important five-year plan project. A decision was made at the beginning of this year: to commence start-up procedures in October. An accelerated construction and installation schedule was approved.

Positive changes were specified for ETKh construction. More than 200 construction workers, pipe fitters, electricians, and insulation installers are working on the facilities.

The construction project needed a rhythm. This has been achieved to a certain degree. Only by making every effort to maintain it can we achieve accelerated completion of an important KATEK shop -- an energy industry plant which is to be a proving ground for comprehensive processing of coal.

3024
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BOOK ON METHANE IN MINES REVIEWED

Moscow TRUD in Russian 18 Aug 82 p 2

[Review by M. Srebnyy, chairman of the Central Committee of the Trade Union of Coal Industry Workers, of book "Gazonosnost' ugol'nykh basseynov i mestorozhdeniy SSSR" [Mine Gas in the Coal Basins and Coalfields of the USSR]: "Geologists Help Miners"]

[Text] Miners are penetrating deeper and deeper into the earth. They are armed with powerful, modern equipment: high-output continuous miners and coal mining systems which totally mechanize labor at the coal face. Nevertheless the presence underground of man, controlling the equipment, is essential.

The principal danger facing miners is methane gas. How can we combat this formidable foe? First of all, experts believe, it is necessary to determine where one can expect release of methane gas and on what scale. If we have a scientifically substantiated geological forecast of the gas content of coal seams, one can assume that the main thing for ensuring methane gas safety at the coal face has been accomplished.

One can therefore understand the considerable interest evoked in miners by the 3-volume monograph "Mine Gas in the Coal Basins and Coalfields of the USSR," published in 1979-1980 at the initiative of the USSR Ministries of Coal Industry and Geology.

This major study presents for the first time a detailed analysis of the specific features of the presence of methane gas in all coalfields which are being commercially mined and surveyed, on the basis of many years of scientific and geological investigations. This is the first such scientific study to be published both in this country and abroad. One can scarcely exaggerate its practical and particularly its social significance for development of this country's fuel and energy base.

The materials in this monograph, the scientific and methodological principles formulated in it, as well as the determined patterns of formation and distribution of gases and their quantitative characteristics in various natural conditions are utilized by geological organizations in coalfield prospecting and survey activities. These materials are presently being employed also in issuing initial data on the presence of gas in mine areas and for ensuring

miner safety and eliminating the negative effect of the gas factor on labor productivity.

The pertinence and importance of this work is increasing in connection with the advance to increasingly deeper coal seams and increasing intensification of coal mining, for at great depth there is an increased inflow of methane in mine workings. Today it is impossible to design mines if one lacks information on gas in the mine area and a calculated forecast of gas generation on the basis of this data.

Such mines as the Raspadskaya, Nagornaya, and Mine imeni Volkov in the Kuzbass, the Vostochnaya-Glubokaya, Nikanor, Nagolchanskaya 1-2, imeni S. V. Kosior, Bolshaya Fashchevskaya, and Chaykino mines in the Donass, the Vargashorskaya, Vorkutinskaya, and Komsomolskaya mines in the Pechora basin, the Kirovskaya, imeni K. O. Gorbachev, imeni 50-letiye Oktyabrskoy revolyutsii, and imeni 50-letiye SSSR mines in the Karaganda basin were designed and constructed taking into account geological estimates of gas in the goal seams. Mine construction decisions based on the presence and quantity of gas in the coal seams ensures high labor productivity and miner safety in these mines.

In view of the great value of this monograph in the development of this country's coal mining industry, we believe that it merits award of a USSR State Prize.

3024
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KARAKAN COAL FACILITY

Moscow TRUD in Russian 24 Aug 82 p 1

[Article by Yu. Kotlyarov, Kuzbass: "Karakan Coal Is Moving"]

[Text] Assembly of a huge walking excavator with a 20 cubic meter bucket capacity has begun in the assembly area of the Karakan coal strip mine, which is under construction.

We were standing on a hill covered with dry grass. The ridges of the Kuznetskiy Alatau were receding eastward. Down below in the valley, where the Inya River, narrow at this point, winds sinuously with its tributaries, sprawled the village of Karakan. It is an old village by Siberian measure: it was established at least 150 years ago. By 1859 it contained 48 households and 296 inhabitants. Here, on the outskirts of the village, machinery maintenance engineers are proceeding with assembly of this giant walker. Dozens of freight cars were required to deliver the hundreds of tons of excavator components to the closest railroad station. They were hauled from there to the strip mine site by experienced truck drivers.

By year's end the excavator will stand up on its mighty "feet" and proceed in this direction, where directly under us stands the steep precipice of the first coal face of the future strip mine. Two excavators with 10 cubic meter buckets are presently stripping overburden from the coal bed, which lies quite shallow: only 25-30 meters. It is 10 meters thick, however, and the quality of the coal is excellent.

Kuznetsk coal, proven reserves of which run into the hundreds of billions of tons, is distinguished not only by high quality. It is much cheaper to mine than in the Donbass, for example. Particularly high hopes are presently being placed on surface mining, which is the least expensive method. Presently one third of the basin's total coal production is strip-mined, and in coming years strip mine production capacity will increase by an additional approximately 8 million tons, primarily by bringing new areas into production, such as the Karakan, Yerunakovskiy, and Bachatskiy areas.

In the Shor language Karakan means "black blood." There is a reason for this name: in some places coal seams crop out to the surface, and the water in the streams at these locations is black. There is a great deal of coal here. Fifty

beds have been surveyed, 16 of which can be strip-mined. It is planned to establish three strip mines as well as underground mines. Total annual production will reach 120 million tons. Just compare: the entire Kuzbass is presently producing approximately 150 million tons.

The Karakan 1-2 strip mine is to be the first in operation. Initially it will supply the nation's economy with 6 million tons of coal a year, rising to 10 million tons when it reaches full capacity. According to the plan, the first unit is to be built in 1986-1989. But the country needs coal today! And the experts at the Kemerovougol Production Association drew up a counter-plan, so to say, for exploiting Karakan, as they also did for the Yerunakovskoye coalfield. They resolved to get to the coal with their own manpower and resources, to build an access road to the site, run a temporary power line, and get the first excavators into operation....

The plan was accepted. A strip mine construction administration was formed, equipment was hauled in, and the first 170,000 tons of coal were produced last winter. An equal quantity has now been readied for production. At present the coal is hauled by truck to the railcar loading point. Construction crews are in the process of running a rail spur to the mine -- it will reach the site next year. Construction is being completed on two permanent substations -- the pioneer coal miners will receive dependable power supply by year's end.

The initiative and enterprise on the part of the miners, who were not afraid to assume additional burdens, have shortened the mine development timetable by several years.

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BRIEFS

DONETSK COAL PRODUCTION--The miners of the Mine imeni Zasyadko were among the first in the Donetskugol Association to report ahead-of-schedule fulfillment of the 2-year coal production target. Competing in honor of the 60th anniversary of establishment of the USSR, all production sections worked smoothly and with precision; there are currently no lagging crews at the mine. Since the beginning of the 5-year plan approximately 3 million tons of coal have been shipped to customers, with 1 out of every 6 tons above-target. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Sep 82 p 1] 3024

GIANT ROTARY EXCAVATOR--Assembly of a rotary excavator with an output capacity of 5250 tons of rock per hour is in progress at the Berezovskiy-1 coal strip mine in the Kansk-Achinsk Fuel-Energy Complex. This giant machine, produced by the Zhdanovtyazhmash Association, bears serial number 1. Assemblies for a second machine of equal capacity are being delivered to the assembly sites. Both rotary units (one for removing overburden and the other for digging coal) will make it possible to commence mining lignite by the progressive stripping technique at one of the largest strip mines of KATEK. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 11 Sep 82 p 1] 3024

DONETSK ABOVE-TARGET COAL--The workforce of the Kommunist mine [in Donetsk Oblast] has completed ahead of schedule the production target for the first two years of the five-year plan. In 20 months the miners have shipped off to the customers more than 278,000 tons of high-quality above-target coal. There are no lagging subdivisions at the enterprise. All four production sections have achieved their socialist pledges. The mine workforce is waging a persistent campaign to improve technical-economic indices. The cost per ton of mined coal has been reduced by 66 kopecks below target. This year more than 600,000 rubles above-target profit has been generated. The specified average daily work loading per coal face been surpassed by more than 200 tons, while in Section No 1, in which S. Novatskiy's brigade works, it has reached 1300 tons. A rally was held at the mine, devoted to this labor victory. New pledges were made. The miners have resolved to produce an additional 30,000 tons of above-target coal by year's end. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Sep 82 p 1] 3024

KOLYMA, CHUKOTKA PRODUCTION TARGETS--The miners of Kolyma and Chukotka have met ahead of schedule their socialist pledges in honor of the 60th anniversary of

the USSR. Since the beginning of the year they have produced 130,000 tons of coal above plan. Adoption of continuous-miner preparatory cutting and high-productivity mechanized systems on the coal faces has reduced manual labor to a minimum. [Text] [Moscow SOTSIALISTICHESKYA INDUSTRIYA in Russsian 10 Sep 82 p 1] 3024

KOPEYSK MINING EQUIPMENT--The high-productivity, reliable mining equipment manufactured by the Kopeysk Machine Building Plant imeni S. M. Kirov in Chelyabinsk Oblast is operating smoothly and without a hitch in this country's mines. Many units are exported to the CEMA countries and other countries throughout the world. Fifty-eight percent of this enterprise's production now bears the state Seal of Quality. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 19 Sep 82 p 2] 3024

TULA COAL PRODUCTION--The miners at the Sokolnicheskaya Mine of the Novomoskovskugol Asssociation are doing a fine job on labor watch in honor of the 60th anniversary of establishment of the USSR. They have met their year's socialist pledges ahead of schedule. In place of the promised 40,000 tons, they have above-target produced more than 55,000 tons of coal. The Sokolnicheskaya Mine is the leading performer in the Moscow basin in level of organization of labor and labor productivity. Equipment is used highly efficiently on its working and development faces and is maintained in exemplary working order. Two of the three operating fully mechanized longwalls are "thousanders." Monthly per-miner output has reached 114 tons here, which is higher than last year's figure. [Text] [Moscow PRAVDA in Russian 3 Sep 82 p 1] 3024

VOROSHILOVGRAD MINERS COMPETE--The leading production brigades of the Voroshilovgradugol Association are standing shock-work watch in honor of their industry's holiday. The crew led by I. Lisovskiy at Voroshilovgradskaya Mine No 1 has brought up almost 400,000 tons of coal since the beginning of the year, 50,000 tons of which are above-target. The brigades of Yu. Yermolenko at the Komissarovskaya Mine and V. Kuzovkov at the Fashevskaya Mine have more than 45,000 tons of coal each to their above-target credit. In August each of these brigades has been exceeding the target by 100-150 tons every day. Since the beginning of the year the Voroshilovgrad miners have produced more than 7 million tons of coal, including 600,000 tons above target. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 25 Aug 82 p 1] 3024

TOREZ COAL PRODUCTION--The miners at the Mine imeni Lutugin of the Torezantratsit Production Association have achieved their 8-month coal production target. The first coal shipment credited to the September target has left the enterprise's loading tracks. Success was achieved due to the smooth, precision performance by all production sections, the high degree of professional expertise on the part of the miners, and efficient utilization of work time. The brigade of Hero of Socialist Labor A. Mel'nitskiy produces 2000 tons of coal each day per face on the average. This is the top production figure on thin seams. The mine workforce resolved to achieve their year's socialist pledges by their industry's holiday -- Miner's Day -- and bring to the surface 100,000 tons of above-target coal. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 Aug 82 p 4] 3024

NOVOKUZNETSK COAL PRODUCTION--Yesterday the miners at the Abashevskaya Mine of the Yuzhkuzbassugol Association congratulated the brigade led by P. Smirnov for ahead-of-schedule achievement of the year's target. This workforce was the first in the Kuzbass to begin producing a thousand tons of coal per day on a stable basis from thin seams. Nature has generously endowed the Kuznetsk area with thick beds of coking-grade coal. But as the coal faces proceed deeper, in a number of mines seams only one to one and a half meters thick began to be encountered in place of the usual 10-20 meter seams. This threatened a sharp decrease in labor productivity. Specialists at Abashevskaya turned for help to their friends in competition, the miners of the Donbass, who have amassed a wealth of experience in working thin seams. The Ukrainian partners sent KMT mechanized systems to the Kuzbass and helped the Siberians install and learn to operate them. Now 1100-1200 tons of coking coal is moved by conveyer to the surface every day from P. Smirnov's mechanized coal face. The experience of the Donbass miners helped many brigades working on the thin-seam longwalls of Novokuznetsk and other mining towns in the Kuzbass reach the ranks of thousanders. Since the beginning of the year Siberia's miners have produced more than a million tons of coal above target. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 4 Sep 82 p 1] 3024

CSO: 1822/307

BRIEFS

HYGIENE AT POWER STATIONS--Technologic progress has completely changed the working conditions and the nature of work at present-day heat electric power stations HEPS; it has put forward new tasks for occupational hygiene. Hygienic studies have shown that equipment of boiler-and-turbine shops is the sourse of heat, noise, and dust, that are responsible for adverse working conditions affecting the working capacity and health state of workers. Introduction of sanitary, technologic, and hygienic measures at a number of HEPS promoted normalization of the nicroclimate, reduction of the noise levels and slag-and-ash dust concentrations in boiler-and-turbine shops; this confirmed the possibility of bringing the values of these factors to hygienic standards. [Review of book "Occupational Hygiene of Present-day Heat Electric Power Stations," by Yu. P. Paltsev] [Text] [Moscow GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA in Russian No 8, 1982 p 5]

CSO: 1812/22

PIPELINE CONSTRUCTION

MINIMIZATION OF PIPELINE EMBARGO RESULTS DISCUSSED

Prague NOVE SLOVO in Slovak 23 Sep 82 p 9

[Article by Otto Sedlacek: "Embargo Will Not Stop the Pipeline Construction--'Insubordinate' Allies"]

[Excerpt] To Minimize Consequences

An extremely important developmental facet in this complex of problems is the Soviet endeavor to minimize the negative consequences of the embargo. Even more, it is possible to say that this is a serious attempt to eliminate the American embargo completely.

The Soviet Union has a vast space for developing its purposeful initiative, although it is not quite a simple operation. First of all, Soviet engineering disposes of adequately large and skilled scientific and technical production capacities, able to ensure timely completion of the export pipeline. Several remarkable instances give evidence of it.

To start with, the Neva Plant, a Leningrad engineering production trust, which up to now has manufactured 10 Mw output units for compression plants, speeded up its transition to the production of 25 Mw output compressor units. There are 20 other enterprises, institutes and organizations in Leningrad which are collaborating with the Neva Engineering Plant in development, design and preparation of serial production. In the plant itself, a fast rebuilding of production capacities is in process, and as early as July the production of parts and nodes for the series of the first nine units has been started. The first aggregate is supposed to be completed in December of this year.

A new type of repumping equipment for compression plants with aircraft power demand was developed in the M.V. Frunze Engineering Production Trust situated in the Ukrainian town of Sumy. The GPA-C-16 aggregate with 16 Mw output is three times as efficient as the original GPA-C-6.3 aggregate. The beginnings of the development of this type of aggregates, built on aircraft engines, go back to the early seventies. Motivation for this trend in development was the fact that in the conditions of the far north traditional methods of building stationary compression plants are little suitable. Special research studies have shown that gas repumping aggregates with aircraft engines are the best variant for the conditions of the far north. So far the use of discarded aircraft engines for these purposes has been bringing an annual saving of about

7,000 tons of expensive refractory alloys. The research and development workers succeeded in converting the aircraft engines from kerosene to natural gas. Further advantages of this type of equipment were revealed later: direct assembly of entire blocks in the production plant made it possible to shorten to one-third the terms of fitting operations at the construction site, and also the operating staff has been reduced to one-third. In 1980, the group of development workers was awarded the State Prize of the USSR. This was the base which served for preparation and realization of the next step, namely to develop aggregates with an output of 16 Mw based on TU-154 and IL-62 aircraft engines. The new aggregates (two prototypes have been tested) proved suitable for a temperature range from -50°C to +50°C, and they need no water for operation. Waste gases can be used for heating of various structures, including greenhouses. The conversion to serial production of the GPA-C-16 aggregates is accompanied by continuing developmental activities aiming at higher efficiency of aggregates using the IL-86 aircraft engines.

Other types of more efficient units are being produced or their serial production is being started by the K.B. Voroshilov Turbomotor Plant in Sverdlovsk (GTN-16), by the Khabarovsk Electrotechnical Engineering Works (repumping equipment with supply line), by the Kharkov Soyuzturbogaz trust, and by other plants.

The situation is similar in the development of the pipe-laying and welding equipment production.

Soviet mechanical engineering produces a vast scale of gasline-laying devices with loading capacity of 6.3 tons and over. A decisive factor in the construction of gas pipelines with pipes of 1,420 mm diameter is the laying equipment with 50-ton laying capacity. Principally, Caterpillar brand machines used to be employed for this purpose at Soviet constructions. In the course of the seventies, the Soviet Union has built a modern and powerful capacity for the production of pipe-laying equipment with equal, in some aspects even higher, parameters thatn those of Caterpillar. Enterprises of three departments, as well as their organizations for research, development and design participated in the development and advancement of the TG-502 laying equipment. The Sterlitamak Engineering Works speedily created adequate capacities for the production and assembly of pipe-laying equipment. Minstroydormash assigned 18 more engineering works in Moscow, Nikopolsk, Chelyabinsk, Alapayevsk and other towns to supply castings, completing parts and nodes. Production volume of this pipe-laying equipment has increased from 85 pieces in the first semi-annual period to 165 pieces in the second. The planned production level for 1983 amounts to 300 pieces.

This brief outline of actual measures and those in preparation shows that the American embargo was ineffective, and that in final consequence it positively influenced the development of production capacities of Soviet mechanical engineering and of organizations for construction and assemblage. It is a factor which accelerates and intensifies technical development, influencing transformation of branch and interbranch proportions. It is manifested also in the conception of the development of nuclear power engineering and in the reorganization of the production schedule of Atommasha--the gigantic nuclear power engineering works being built in Volgodonsk. It is natural that such national

economic maneuvers cannot be brought about without pertinent material, technical and personal measures, as well as investments. In spite of that, it is justifiable to assume that the general balance of these measures will be positive--in the economic as well as the broader political sense.

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CSO: 2400/32

PIPELINE CONSTRUCTION

POLISH ORGANIZATION HELPS BUILD GAS PIPELINE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Oct 82 p 3

[Interview with Genrikh Kubskiy, general director for construction of the Polish section of the Surgut-Polotsk petroleum main, by S. Medayskiy in Novopolotsk; date not specified: "The Achievements of 'Energopol'"]

> [Text] "Energopol'": Readers of SOTSIALISTICHESKAYA INDUSTRIYA are already familiar with this Polish association for construction of pipelines and other facilities. It has been credited with many high capacity pipelines and pumping stations presently in operation.
>
> We are speaking with the general director for construction of the Polish section of the Surgut-Polotsk petroleum pipeline, Genrikh Kubskiy, a highly experienced engineer who has devoted his entire life to laying pipelines. But before going into the construction project itself, I asked him a somewhat unexpected question:

[Question] Many have had the pleasure of reading in the Polish press about the work of "Energopol'" in the Soviet Union. It would be hard to ignore the fact that in 1981 the opinion of its work veered significantly to its unfavorable pole. Some authors, clearly dancing to Solidarity's tune and forgetting what they themselves had written previously, are trying to persuade the reader that this entire affair with the pipeline is harming the Polish economy, that the construction project is unprofitable, that it is wrong, and so on and so forth.

[Answer] Yes, in the past year the "Energopol'" association had to literally fight off the "experts in economics" in defending the construction project , its aims and its deep meaning. If only a few reporters had acted as "unbiased laymen," or if they had been so in fact....

However, as you can see, "Energopol'" endured, and it was not shaken. Our workers were not frightened when, after martial law was instituted in the country with the purpose of putting an end to the chaos and confusion, which existed in economic affairs as well, Western corporations started "forgetting" about delivering spare parts for imported equipment, about "Shtayer" pipe

carriers, about steel piping and about many other things. They hoped that without these deliveries we would tear up the contracts, and Siberian petroleum would never be pumped into tankers at ports on the Baltic coast.

But those who gave the orders to large corporations to suddenly become excessively forgetful failed miserably. Our friend, the Soviet Union, compensated for the serious gaps in our equipment supply. I will return to the enormous help given to Polish builders by your country later on. For the moment I would like to briefly reply to the question concerning the economic essence of our construction project, since I will not have the opportunity to discuss its political and international significance.

We did in fact purchase a great deal of equipment, for hard currency, in the USA, the FRG, Austria and other countries for "Energopol'" in the last decade. Our Polish workers will in fact receive their wages in rubles--that is, in the monetary unit of the country in which they are living and working. There is one "minor" thing to add: Because of the contribution made by the "Energopol'" collective to creation of the pipeline, additional deliveries of petroleum will be insured over the long range. My country is receiving a very valuable raw material which, were it to be purchased from international markets, would have required much greater outlays of hard currency.

This is the essence of the truth which Solidarity attempted to conceal from the Polish people, for fully understandable reasons. Recognizing the special significance of deliveries of petroleum from the USSR to Poland today, our workers enthusiastically surmounted the marshlands, leading the welded strands of the petroleum pipeline behind them, moving day and night aboard a "lezhnevka"--a raft made of timbers, branches and sand.

[Question] Today, even from a helicopter it is impossible to see the 300-kilometer pipe, which lies in many areas beneath a layer of quagmire in special reinforced concrete anchors. But other facilities erected by "Energopol'" can be seen.

[Answer] The modern petroleum pipeline is far from finished when the pipes are laid. This is only part of the whole business. The entire route must be "filled" with pumping stations and automatic communications, and roads, administrative buildings, housing and many other facilities are needed.... When we say "finish the petroleum pipeline section from Andreapol to Velikiye Luki to Turichino to Novopolotsk in its entirety" we are talking about dozens of facilities. Imagine for a moment that we are surveying the entire route from a helicopter. Rising into the air, we see not only the transfer point and pumping station, the enormous containers for storage of crude oil and petroleum products, the administrative buildings and the bases of the Polish builders, but also a cozy children's nursery, in which the youngest residents have already established themselves--children of Soviet maintenance personnel.

[Question] Where is "Energopol'" working today?

[Answer] Mainly in Velikiye Luki. A large marshy area was apportioned to us next to the base. Thousands of "Energopol'" workers began work in unison. They had to build a social-administrative complex and a technical maintenance

center. The complex includes residential buildings, a store, a dining hall, a restaurant and other facilities. The center contains several plants--wood-working, concrete and machine repair, a garage for motor vehicles and other mechanisms, a laboratory and an administrative building. And erection of all of this required more than 2,000 reinforced concrete piles driven into fill 5 meters high.

Today all of this is behind us, and both complexes are growing before our eyes. The work will be completed in the third quarter of 1983.

Here as at other facilities, we fully sensed the power and scope of brotherly support. We were lacking many construction materials--trucks ordered from the West were not coming in. Our Soviet comrades managed to efficiently solve these problems. Powerful KrAZ and ZIL trucks appeared in place of the "Shtayer" trucks that never came, and delivery of the necessary materials was organized. We got back on schedule, and now we are even ahead of it.

And what is socialist competition other than mutual assistance and aid? A competition has now been going on for 2 years between the collectives of the "Neftestroymontazh" installation administration, "Energopol'," Komsomol youth concrete layer brigades of "Neftestroy" Trust's Construction Administration No 121 (Viktor Bodyul, brigade leader) and a youth concrete layer brigade of "Energopol'" (Andzhey Vitka, brigade leader). Constant contacts and mutual assistance exist between the base in Turnichino and the Nevel "Metallist" Plant. But there are so many, I could hardly name them all.

To conclude, let me say that by its work, our collective is strengthening the friendship and brotherhood between the peoples of Poland and the USSR. By the end of 1983 the entire construction project will be finished. But this will not end "Energopol''s" stay on hospitable Soviet soil. Polish workers have already begun working on construction of the Khmelnitskaya, Smolenskaya and Kurskaya atomic electric power plants. In a word, after "taking" the Andreapol-Polotsk section by storm, no quagmires and obstacles are frightening to us.

11004
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PIPELINE CONSTRUCTION

GAS PIPELINE CONSTRUCTION ASSUMES MULTINATIONAL CHARACTER

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 7 Oct 82 p 2

[Article by Yu. Belanov, A. Mat'tsev, Yu. Yermolin, U. Bogdalov and L. Sotnik: "The Route of Friendship"]

> [Text] The Fundamental Law of our country states: The USSR economy represents a single national economic complex. One of the clearest confirmations of this is construction of five of the largest gas mains leading from West Siberia to the country's center, and the Urengoy-Uzhgorod export gas pipeline. Many nationalities of our motherland and friends from socialist countries are laboring together here. Equipment from many union republics is being shipped here. Today we publish a report from the route of the gas pipelines presently under construction.

At the village of Khetta, between Nadym and Pangodami, the Urengoy-Uzhgorod route must cross six "strands" of operating gas pipelines. Were they to be turned off, the country's industrial centers would be short by billions of cubic meters of fuel. Thus it was decided to lay a 300-meter section of the new gas main beneath the pipes through which natural gas rushes at an enormous speed.

Preparations for the unique operation were made with special care in the "Severtruboprovodstroy" Trust. Log roads were laid, and approach roads were built for pipelayers, bulldozers and excavators. Specialists made sure that dependable engineering support was provided and that work safety practices were followed.

As we know, the work of building the pipeline route begins with digging a trench. But this time it was not easy to dig--there was no place for the heavy equipment to turn around in the narrow "corridors" between the operating gas pipelines. Therefore in some places the trench, which was 5 meters deep, had to be dug by hand.

As always, the brigade led by USSR State Prize laureate B. Diduk showed itself to be of a higher class. The brigade had to join sections of different sizes on the floor of the trench, from which they could barely manage to pump the

water out: There were torrential rains for several days in a row. But the welders kept to their word: The assignment was completed on schedule.

An operational meeting had just come to an end in the office of the trust's chief engineer, A. Sazhnev. This was the last operation before the most critical stage. Anatoliy Pavlovich reported to the main administration:

"The gas pipelines have been unearthed. The length of pipe has been delivered to the edge of the trench. We can begin."

Everything was also in ready in V. Igoshev's brigade, which was to drag the 300-meter length of pipe beneath the operating mains. An experienced pipeline layer, Igoshev had built many gas pipelines before. For the last 5 years he has been working in the Tyumen North. He has as much confidence in his people as he does in himself.

"It's time boys. Let's go!" the brigade leader commanded.

The first to leave were pipelayer operators V. Burlak and V. Nardyuzhov. They were aided by A. Leskin, who carefully pushed the multiton length of pipe with his bulldozer. Slowly it passed beneath the first "strand" a centimeter at a time--the Urengoy-Petrovsk gas pipeline, which was under operating pressure. Meanwhile the assemblers were already adding on more lengths to the transition pipe, so that further progress could be made. Soon the pipe from Gryazovets was crossed. With the same jeweler's precision.

By evening the main administration received the report: The assignment was completed! The brigades began testing the joints for strength.

After the work slacked off a little, we asked the chief of the main administration's production administration, S. Gur'yashev, to comment on this event. He was brief:

"The work was finished before the cold season," said Sergey Pavlovich, "and this is what was most important. After all, if we had not finished by now, we would have had to call in much more equipment to complete this complex operation."

We should add that not one of the operating gas pipelines was turned off for even a minute.

Now we are in Sverdlovsk Oblast, at the gas compressor station site near Ivdel. The temperatures dropped sharply in the last few days, and the weather worsened. Half a meter of snow had fallen. This made things much more difficult. But builders of the "Boksitstroy" Trust kept their promise. By Constitution Day they completed their work on the foundation of the new compressor station.

The workers of "Boksitstroy" have always been distinguished by the fact that they boldly introduce new technical concepts. And this time, capitalizing on the closeness of monolithic rock to the surface, they implemented a new idea arrived at by specialists of the "Uralpromstroyniiproyekt" [not further identified] institute. After laying the utility lines of the future building of the

compressor station, the builders added a layer of gravel and then laid the floor slabs over the latter. Then they injected cement slurry under pressure through a hole in the floor. And so the concrete platform on which the compressor station was to stand was formed.

Such concepts are making it possible for the collective to fulfill its pledge--to finish the compressor station in 9 months less than the standard time.

On the eve of USSR Constitution Day the linear part of the Urengoy-Novopskov pipeline began to arrive on the territory of Sverdlovsk Oblast. Concurrently general preparations were being made for the events to unfold at Uzhgorod. Equipment storehouses and approach roads were built at the sites of the compressor stations. The trusts studied the technical documents.

Party organizations of enterprises located in Ivdel, Nizhnyaya Tura and Krasnoturinsk are acting as sponsors of the builders of the gas compressor stations. They are helping to provide personnel, and they are organizing days of voluteer work.

And now let us leave the route for a little while.

Leningrad. We are at the "Nevskiy Zavod" Association imeni V. I. Lenin. Preparations for series production of GTN-25 gas pumping units are coming to an end.

The collective prepared meticulously for production of the superhigh-power equipment for the main gas pipelines. The territory of the plant in charge of this operation has been transformed into a large construction site. Beneath the roofs of new modern production complexes, and frequently side to side, builders, installers and the machine builders themselves labor together. One becomes even more amazed by the scope and organization typifying the effort to reequip the mechanical shops. There are no longer any sections in which obsolete equipment has not been replaced by more-productive high-precision machine tools, special machine units and productions lines.

"Without them," said the association's chief process engineer, O. Rostovtsev, "it would have been impossible to even think about achieving the required production rate and quality. The new machine unit is a major step forward in Soviet gas turbine building. Its introduction promises an enormous national economic impact. According to the technical-economic indicators achieved in the course of integrated tests on the pilot model, it surpasses the best similar foreign models."

The designers kept their promise. Specialists of other services and the inventors accepted the baton from them. They took on the task of minimizing outlays on production preparations. A movement under the slogan "Process Engineers--to the Forward Edge" received a shot in the arm. Dozens of creative integrated brigades are successfully searching for production reserves. Young machine builders have assumed sponsorship over series production of the GTN-25. In the turbine shop, for example, we were shown an original mandrel making it possible to work rotor discs twice as fast. Komsomol members--Viktor Uglovskiy who operates machine tools equipped with partial programmed control, and process engineer Aleksandr Soroka proposed the innovation.

Preparations for series production of the GTN-25 are proceeding practically without reducing the normal production volume. The Leningrad Oblast party organization and kindred enterprises are providing great assistance to the collective. This machine of a new generation has become a symbol of the unity of the thoughts and works of thousands upon thousands of scientists, specialists and producers of this city on the Neva. The fruits of their joint actions are becoming more and more visible. There can be no doubt that the first series-produced machine units will be assembled by the USSR's jubilee.

And now back to our story of the route.

The arrow on the pressure gauge trembled and then moved across the scale. One atmosphere..., 3 . . . , 10 . Anzor Akhalaya wiped his aging eyes with his fists and once again gazed at the pointer, as if in disbelief. Compressor station operator Nikolay Minayev's voice could barely be heard over the roar of the motor:

"We did it, Anzor!"

Akhalaya simple nodded in response. He did not have the strength left to say anything, or even just smile. It was as if the compressor roaring beside them had sapped him of his last strength, as if he himself was subjected to its dozen or so atmospheres.

The skeptics prophesied at least 2 weeks of trouble with the capricious machine unit, but they got it going in a week. To them, the last 7 days were a single work shift. They left the compressor only to grab a bite to eat and to catch a quick cat-nap. Otherwise it would have been impossible. The pipeline route was waiting for the machine.

Chuvash soil could not have given a worse "gift" to the pipeline layers. In almost every kilometer of the route of the Urengoy-Uzhgorod gas pipeline, there were canyons and streams to cross, and roads to dig beneath. In order that strength would be assured with room to spare, the pipe is tested with special persistence in such sections. The testing pressure is higher than the operating pressure. And the unique compressor, which was operated by an engine from a "Uragan" tractor, could not break the pipeline.

Later on, in the unaccustomed quiet of the shuttle bus, which made it in cross-country in the face of a relentless autumn rain, Minayev asked Anzor:

"So tell me, how often did you think about the sunny skies of Georgia?" This was the response he heard:

"They write me from Georgia, and they ask me, Anzor, how our pipeline is doing. Of course Georgia is the light of my life. But this is also my homeland now. Our sweat and part of our lives are here now."

"You're right, old man," brigade leader Rashid Daminov came to his support. "We'll make it across all of Chuvash, and we'll start calling it our second motherland. Think back, and imagine how many other places like this we've passed through in the whole country."

"Salaam, friends! That means we've become fellow countrymen," Chuvash Petr Bochkarev joked in response.

We heard the story about the compressor station from the chief of the integrated production unit, L. Mikhel'son, on the bank of the Volga, from which the Chuvash section of the route began. The many kilometers of the Volga floodplain gave way to the forests of the Mari ASSR, and there, beyond the horizon, the route crossed the border into the Tartar and Udmurt ASSRs. A string of beads of fraternal autonomous republics.

"To understand the international nature of our people and their entire way of life, one need not travel much through the country," said L. Mikhel'son, continuing our conversation. "It would be sufficient to live at least a few days in our camp. There are many nations represented here, but it is one family, it has one goal, and its joys and concerns are common. Welder N. Krovitskiy did welding jobs on the first Soviet gas pipeline from Saratov to Moscow, and later on he worked on the 'Druzhba' petroleum pipeline and the Central Asia-Center route. The same places where Anzor Akhalaya worked--a real man and a true friend. Had it not been for such masters, we would not have achieved the present rate--a kilometer of finished route per day."

This is the very speed at which the multinational integrated production unit of the "Kuybyshevtruboprovodstroy" Trust is moving west today. Mikhel'son's production unit has been under the unweakening attention of economists of the trust and of the Ministry of Construction of Petroleum and Gas Industry Enterprises, being one of the collectives in which accounts are to be settled on the basis of the end result. Everything here is reckoned on the basis of completion of a finished construction product--the gas pipeline route.

Even the most unusual circumstances cannot detain the production unit's giant strides. Circumstances such as those at the memorable kilometers between the 114th and 144th kilometer posts, when a 500 meter section of the canyon slope slid into the finished trench. The slide mercilessly crossed out a day's progress--a kilometer. But the elements were countered by self-sacrificing labor. On that day the shuttle buses did not leave for the camp until deep into the night. They left behind a completely cleared bed for the piping. In the bus, not a single word, not one of the usual jokes could be heard. Overcome by extreme tireness, Russians, Chuvash, Mordvinians, Georgians, Armenians and Tatars all dozed.

A kilometer a day. Six kilometers a week. By Soviet Constitution Day Mikhel'son's production unit covered half of the 127-kilometer route from the Volga to the Sura.

In Uzhgorod we met N. Semenyuk, secretary of the Transcarpathian Oblast party committee. Our interview was short that day. The obkom secretary was in a hurry:

"Today we're meeting the first group of builders from the GDR for the Urengoy-Uzhgorod gas pipeline. They will quarter themselves in the mountain village of Volovets, and I have to make sure that everything is ready for their work and relaxation. I also hope to meet some old friends."

Nikolay Nikolayevich had reason for such hopes. After all, participation of CEMA countries in erection of the largest gas mains had already become a traditon. Not that long ago the last joint of the "Soyuz" gas pipeline was welded in that same Uzhgorod in a solemn ceremony. And there were builders from the GDR among those who were given this high honor. It was to them that the obkom secretary was referring.

A little more than 2 months later these ambassadors from the fraternal country managed to make themselves fully at home beside the pipeline route. They are now participating in erection of compressor stations in the Transcarpathian, Ivano-Frankovsk and Vinnitsa oblasts. Moreover they are to complete a sizeable volume of jobs associated with erection of housing and of social and cultural facilities. But they believe that perhaps their most important task is work on the 60 kilometer portion of the pipeline route crossing the Carpathian Mountains.

In extremely short time the ambassadors from the GDR erected the principal facilities of the pipe welding base and began welding and laying the main pipelines. These friends from the GDR have great plans. But it would be better for this story to be told by the leader of the GDR party staff of the gas pipeline construction project, Vol'fgang Sukhi:

"Following the example of our neighbors from the Transcaucasian Pipeline Construction Administration, who promised to erect every kilometer of the route ahead of schedule, our collective suggested the slogan: 'Outstanding Results Every Day'."

Our German friends set the following goal for themselves in the socialist competition: complete the jobs ahead of schedule while maximally economizing on materials. New patriotic initiatives are perpetually coming into being in all of the labor collectives. Thus the "Vaydenzeye" youth brigade from the construction section in the city of Bar turned to all ambassadors from the GDR with the challenge to finish everything in the section ahead of schedule.

"As with our Soviet friends, we believe," concluded Vol'fgang, "that the best response we can make to the Reagan administration's attempts at undermining construction through blackmail and prohibitions is to put the gas pipeline into operation ahead of schedule."

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PIPELINE CONSTRUCTION

BRIEFS

TRANSCAUCASIAN PIPELINE FINISHED--Inspired by Comrade L. I. Brezhnev's visit to Baku and the republic's receipt of a high award, collectives of the Transcaucasian Pipeline Construction Administration and the "Aztruboprovodstroy" finished construction of a 220-kilometer section of gas pipeline on the route between Kazi-Magomed and Mozdok, getting as far as the Samur River, in accordance with the assignment for the third quarter. Now that the tests have been completed, the blue fuel artery is ready for work. These collectives now have one of the most important assignments ahead of them--participation in the laying of the Urengoy-Uzhgorod pipeline. "Today," said deputy chief of the Transcaucasian Pipeline Construction Administration R. A. Chakmazov, "most of the brigades have already been transferred to work on the main artery. After finishing their work in Azerbaijan, freed subdivisions were sent there as well. Considering the advice of Leonid Il'ich Brezhnev, particularly on hastening erection of facilities connected with the energy program, our collective promised to complete work on its 60-kilometer section of the Urengoy-Uzhgorod gas main by 7 November." [by G . Stasin] [Text] [Baku VYSHKA in Russian 5 Oct 82 p 3] 11004

CITIES FOR PIPELINE BUILDERS--Ufa--New enlarged residential bases will help us find an integrated solution to the problem of organizing the life and leisure of builders on the Urengoy-Pomary-Uzhgorod gas pipeline route. Erection of the first one of them has started in the vicinity of the Pelym compressor station. It is intended to service 500 persons, and it foresees the maximum conveniences possible under the conditions afforded by the area--good housing, a bakery, a bath and even a swimming pool. This year another such base town will be erected beside the Lyalinskaya compressor station. Cultural centers are to be created in the larger towns. Party organizations created in the production units are showing concern for creating more than just normal housing divisions for the pipeline layers: Public cultural and athletic functions are being organized in the towns. [by R. Rupyshev] [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 19 Oct 82 p 2] 11004

GAS PUMPING UNITS--Leningrad--Extensive refitting of machine tools and mechanisms has been started in the "Nevskiy Zavod" imeni V. I. Lenin Association. The collective of the enterprise, which has been given the job of series production of 25,000 kilowatt gas pumping units for the Urengoy-Pomary-Uzhgorod pipeline, has begun creating production lines specialized for the manufacture of these machine units. Yesterday erection of two additional stands for assembly

of the "GTN-25" machines was completed. "This year we will manufacture one high-output gas turbocompressor, and next year we are to ship 70 such machines," said the association's director, G. Velikanov. "We are making intensive production preparations so that we can sharply increase manufacture of the new products in the shortest time possible: We are creating specialized sections broken down into several production lines, each of which will end at a separate assembly stand." New highly productive equipment is coming to the enterprise--lathes and milling machines to process large parts, and "pointed journal" multi-position machine units. The fleet of machine tools with digital programmed control is growing. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Oct 82 p 1] 11004

COMPRESSOR STATION EQUIPMENT--Magnitogorsk--The Magnitogorsk Mechanical Assembly Plant of the "Vostokmetallurgmontazh" Trust received an important order. It was ordered to manufacture about 300 tons of equipment for compressor station framing for the main gas pipeline under construction from West Siberia to West Europe. The production collective related very responsibly to its assignment. A group of specialists visited kindred enterprises in Sverdlovsk and Nizhniy Tagil, where such equipment had been manufactured before. The plant's own proposals aimed at fulfilling the honorable order on schedule and with high quality are being implemented as well. [by N. Chulikhin] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 15 Oct 82 p 2] 11004

PIPELINE TO CROSS KAMA--Leningrad specialists from Underwater Technical Operations Administration No 6 completed the final preparations for the Kama crossing of the Urengoy-Pomary-Uzhgorod main gas pipeline. A recently received telegram reports that the assault on the river, which is now at its high-water mark, will begin any day. This will be one of the largest water crossings of the transcontinental pipeline route. The banks are 600 meters apart at the crossing point, and one strand of pipe has already been laid between them. It is now time to lay its "double." Work is proceeding almost half a year ahead of schedule. This is the result of extensive use of high-power modern mechanisms. The work method based on a single order has enjoyed wide acceptance in construction. I. Usenko's brigade is leading the competition for an honorable welcome to the 60th anniversary of the USSR's formation. Each brigade member has mastered associated specialties, so that each can now perform the jobs of diver, mechanic, welder and liner. Such combination of occupations is making it possible to keep the pace of the gas pipeline's construction fast. [by L. Frolov] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 15 Oct 82 p 1] 11004

MOZDOK-KAZI-MAGOMED PIPELINE FINISHED--"The tests were successful!": Such were the reports received by the main dispatch office of the Ministry of Construction of Petroleum and Gas Industry Enterprises from all sections of the gas pipeline from Mozdok to Kazi-Magomed. Thus construction of the new gas main has been completed. Its length is about 700 kilometers. In a few days it will begin carrying its quota of gas for the five-year plan. [Text] [Moscow PRAVDA in Russian 20 Oct 82 p 1] 11004

NEW MARSH VEHICLE--Soviet industry has created effective and dependable equipment for work with 1,420-millimeter pipes intended for gas pipelines laid in the

complex conditions of the North. In 2 years Soviet industry assimilated series production of the BT 361 "Tyumen'" vehicle, intended to transport various cargoes over marshy and flooded areas, in place of previously purchased Canadian marsh vehicles. Now more than 200 vehicles of this kind are operating successfully in the vicinity of Tyumen. [Text] [Riga SOVETSKAYA LATVIYA in Russian 7 Sep 82 p 1] 11004

PIPELINE VOLGA CROSSING BEGINS--Zvenigovo (Mari ASSR), 12 Oct 82 (TASS)--The pipelayers have been formed up into a row, the launches have frozen in their positions on the Volga, and the workmen have taken their places. And now the long-awaited moment arrives: The starting signal is given. A multiton steel length of pipeline resting on the left bank virtually comes to life. Slowly, centimeter by centimeter, it comes closer to the water. So began the crossing of the Volga today by the Urengoy-Pomary-Uzhgorod main gas pipeline. This siphon across the Volga is the largest of 13 water crossings by the transcontinental main. It is more than 2 kilometers from bank to bank in this place. Dependable operation of the siphon has been insured by courageous engineering concepts suggested by specialists of the Kazan Underwater Technical Operations Administration. The pipes were welded together into lengths on a special mechanized stand at a production base in Kazan. Rafted together, these lengths were delivered by water to the construction site at Zvenigovo. The leading end of the siphon, which is painted red, slowly drops into the river, carrying the length of pipe behind itself. A wide "rut" was dug for the piping across the floor of the Volga at a depth of up to 20 meters. A few hours later, the work stops. The first section of the siphon is beneath the water. Welders headed by an expert foreman, N. Bogunov, weld the next length of pipeline to its end. Simultaneously divers drop beneath the water to make sure that the first unit is laid correctly in the trench. "It's a work day for us today, but our mood is a holiday one," said I. Zakharov, chief engineer of the "Vostokpodvodtruboprovodstroy" Trust. "The crossing of the Volga was started 7 months ahead of schedule. Technical innovations made it possible to beat the work schedule." The crossing of the Volga continues. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 13 Oct 82 p 2] 11004

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